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Businessweek

# The Forever Pill



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quest for the  
world's first  
anti-aging drug**

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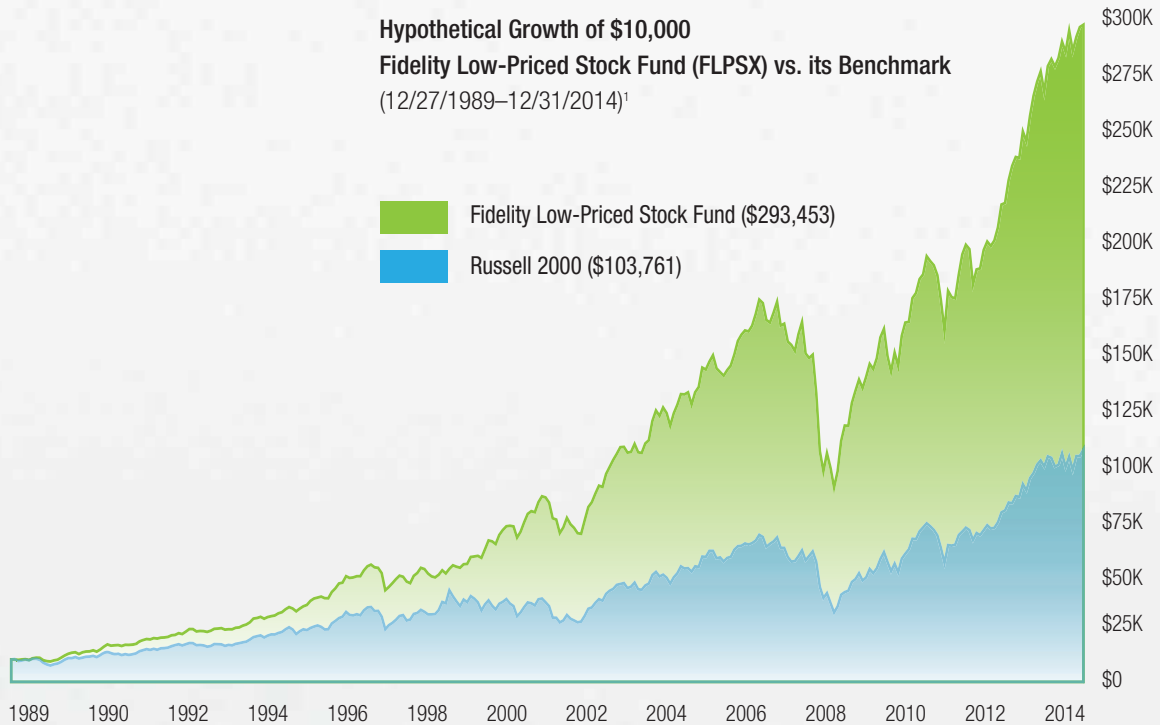
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<sup>1</sup>The chart above illustrates the performance of a hypothetical \$10,000 investment made in the fund and a benchmark since the inception date of the product. Benchmark returns include reinvestment of capital gains and dividends, if any, but do not reflect any fees or expenses. It is not possible to invest in an index. This chart is not intended to imply any future performance of the investment product.

<sup>2</sup>Expense Ratio is the total annual fund operating expense ratio from the fund's most recent prospectus.

<sup>3</sup>Russell 2000 Index is a market capitalization-weighted index designed to measure the performance of the small-cap segment of the U.S. equity market. It includes approximately 2,000 of the smallest securities in the Russell 3000 Index. It is not possible to invest directly in an index.

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# Bloomberg Businessweek

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How the cover gets made

1

"A pharmaceutical company is attempting to develop a viable anti-aging pill."

"Oh God, I hope they hurry. I really do. Every day I look in the mirror and see a new gray hair, my porcelain skin turning to leather, my once-taut physique sagging toward my inevitable grave."

"What a lovely way to think."

"OK. Let's focus on the positive. We can do a shoot that celebrates the potential for a long, happy life."

2



"There's nothing more celebratory than two sassy ladies marking their 173rd birthday."

"Apparently not. This is a surprisingly tough choice."

"I identify with the woman on the left. She seems gentle and sweet. And I've never been able to say no to anyone in a blue cardigan."

"Look, I love Emmylou Harris, too, but if I live to be 173, I'll probably rub it in people's faces like the lady on the right."

"This has been an illuminating discussion."



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Subscriptions 800-635-1200

Address 731 Lexington Ave., New York, NY 10022

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PO Box 37528, Boone, IA 50037-0528

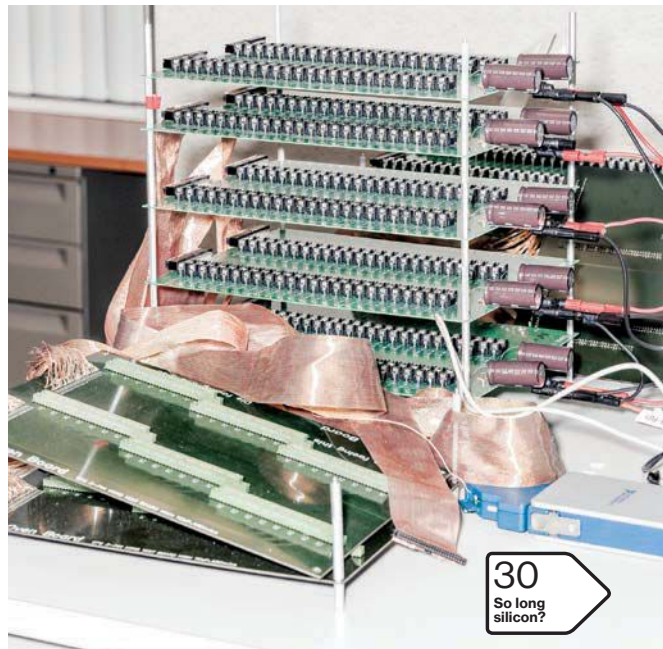
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### Corrections & Clarifications

"Let Them Eat Burgers" (Companies/Industries, Feb. 9-Feb. 15, 2015) should have read, "Many pension [not mutual] funds and other passive investors don't have a choice, says Brian Rice, a portfolio manager at California State Teachers' Retirement System." Also, CalSTRS invests in some things directly, but also invests in index funds, where it has no choice. **Q** "Well, That Was Awkward" (Politics/Policy, Feb. 9-Feb. 15) incorrectly described Illinois Senator Mark Kirk as a member of the Foreign Relations Committee. He sits on the Banking Committee. **Q** "A Bill: The B-School Deduction" (Politics/Policy, Feb. 2-Feb. 8, 2015) incorrectly described the current tax program for deducting interest on student loan interest. Individuals earning less than \$80,000 and couples filing jointly earning less than \$160,000 can deduct as much as \$2,500, depending on their income.



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## Opening Remarks

# The Elephant In the Room

By Michael Schuman

**India's growth rate is suddenly rivaling, even outpacing, China's. Can it sustain the momentum?**

The progress of Asia's two giants, China and India, can be neatly encapsulated by the imagery used to portray them. China is usually characterized as a dragon, aggressive and slightly frightening. India, on the other hand, is often described as an elephant—big and powerful, but also lumbering and slightly ungainly.

Unfortunately for India, the caricatures are all too accurate. For the past three decades, China has reigned as the world's premier emerging economy; India always plodded behind, stumbling in China's formidable wake. As China raced with fiery purpose from a poor, isolated nation into the world's second-largest economy, India's boundless potential remained mostly untapped, its people mired in poverty and its footprint on the global stage barely perceptible.

Mention China to an international executive and watch him salivate over 1.3 billion increasingly wealthy consumers. Mention India and listen to complaints about a bureaucracy that tramples free enterprise. That's why foreign investors plowed \$124 billion into China in 2013, according to the United Nations Conference on Trade and Development, but only \$28 billion into India.

All that's about to change. The Indian elephant is set to outpace the Chinese dragon to become the world's fastest-growing major emerging economy. According to official data released on Feb. 9, India's gross domestic product in the last two quarters of

2014 surged 8.2 percent and 7.5 percent, topping China's performance. For the current fiscal year, India's government expects GDP to grow 7.4 percent, a hefty jump from 6.9 percent the previous year. "The stars do seem to be aligning in India's favor," says Cornell University economist Eswar Prasad. "Among the large emerging-market economies, India stands out."

Granted, these eye-popping growth rates are the product of a controversial and confusing revision by India's statisticians of how they calculate GDP. But even before this, some economists had been predicting that India would start to grow more quickly than China over the next two years. That's because dramatic changes are afoot in both countries.

China's era of supercharged expansion looks to be coming to an end. In 2014 the economy sank to its slowest growth in almost a quarter century, and many economists anticipate its pace will decline even further. The International Monetary Fund expects growth to fall from 7.4 percent in 2014 to 6.3 percent in 2016. To return to health, Beijing's policymakers are trying to engineer a critical rebalancing from investment-led to consumption-driven growth—a tricky transition that's proving much harder than it sounds.

India, on the other hand, is still sitting on the launchpad, waiting for true economic liftoff. Even after two decades of solid if not spectacular growth, it's at an early



## Politics hamstrung India's economy in the past and may still provide major stumbling blocks

stage of development compared with China. India's GDP is a fifth of China's. Nearly one out of four Indians remains trapped in absolute poverty, according to the World Bank, compared with only 6 percent of Chinese. Corporate India has scored a few impressive successes—most notably in IT services—but hasn't left as deep a mark on the global economy as Chinese industry.

That gap is, to a great degree, a creation of politics. After China cracked open its Soviet-style economy to private enterprise and foreign investment in the early 1980s, India began liberalizing its

state-dominated economy in 1991 by dismantling what was called the License Raj, an impenetrable web of regulations that allowed the government to control business. But the reforms didn't go far enough. Many of India's squabbling politicians continued to distrust the free market and foreign companies and held up reform in interminable debates and protests.

That set the two economies on very different courses. In China, factories and skyscrapers rose with authoritarian efficiency; in India, major investment projects were stalled by the bureaucracy. While China became the Workshop of the World, India missed out on the mass manufacturing that generates jobs and exports. As reform in India faltered earlier this decade, growth slumped, and confidence in the economy deteriorated. India's policymakers, meanwhile, were often too politically paralyzed to repair the problems.

Now, however, a fresh, can-do spirit has captivated New Delhi. In May voters kicked out the ineffective Indian National

Congress-led coalition and ushered the Bharatiya Janata Party into power in an overwhelming landslide. Prime Minister Narendra Modi has restarted India's free-market reform program with the aim of spurring a China-like investment surge. In September he launched a "Make in India" campaign, with a roaring lion as its logo, intending to turn the country into a manufacturing powerhouse to rival China. To get there he loosened convoluted land acquisition laws that held back big projects and streamlined the cumbersome process of obtaining government approvals. He increased the limit on foreign ownership in the insurance sector and other industries. India under Modi "has already seen a move towards kick-starting the investment cycle, and we think reforms to boost investments can continue," economists at Goldman Sachs wrote optimistically in a recent report.

India is also catching on to long-term trends that helped boost growth in China. Its Internet and computer usage is low compared with much of the rest of Asia, but new technologies are penetrating deeper and deeper into Indian society, which will provide a much-needed jolt to productivity. Goldman expects the number of Indian Netizens to rise almost two-thirds by 2018, to 410 million. India also possesses a demographic edge over China. Thanks to China's one-child policy, its labor force is shrinking, which should drag down growth. India's working-age population is expanding rapidly, which will give the economy a lift.

Modi's reforms, combined with the

new GDP revisions, could push growth to China-like rates. In a preliminary estimate, HSBC figures India's growth in the next fiscal year could reach around 8 percent. Still, if India wants to sustain such superhigh growth, as China had for decades, much more has to be done. "Ultimately the question is if the reforms will be far-reaching enough," says Cornell's Prasad. "That is far from certain." Modi has barely gotten a start on some critical but politically sensitive reforms—most of all, overhauling archaic labor laws that discourage job creation and worker training and scare off manufacturers. To implement such controversial changes, he'll have to overcome persistent resistance from unions, civil servants, and recalcitrant politicians. Although Modi and his allies command a majority in Parliament's lower house, the upper chamber is still controlled by the opposition, which has foot-dragged on passing his reform measures. Modi's BJP also lost local elections in Delhi to a small, anti-corruption party, a reminder that his political position is far from unsailable. And there's always the risk that the Hindu nationalists, who form the backbone of the BJP, could stir up trouble. If Modi's reforms stumble, so could India's prospects.

Even with a sustained reform effort, India's growth spurt may not match China's past performance. With its more decentralized governing system and contentious political culture, India might not be equipped to marshal men and material in a China-like quest for industrial prowess. It's also so far behind China that it could take decades of high growth to truly catch up. Research firm Oxford Economics projects that India's per capita income will still be lower in 2030 than China's is today. That means India's rise may not have the globe-rattling impact of China's. "India may grow faster than China, but that's not to say that it will pack the same punch," notes Frederic Neumann, co-head of Asian economics research at HSBC.

That's not necessarily all bad. Perhaps India can develop in a more sustainable and balanced way than China, without the excessive waste and environment degradation that breakneck expansion spawned. At a time when China is slowing, Europe and Japan are flatlining, and other major emerging economies such as Russia and Brazil are struggling, the global economy needs a strengthening India to act as a reliable pillar of growth. We should all hope that the Indian elephant finally starts to charge. **9**

## Rousseff Pours Fuel On Brazil's Crisis

The appointment of a loyalist to head Petrobras spooks the market



By making Aldemir Bendine the head of Brazil's state-run oil giant *Petróleo Brasileiro*, President Dilma Rousseff has demonstrated she's more interested in protecting her party's interests than restoring the crown jewel of the country's economy.

Investors have since dumped Petrobras shares, and you can't blame them: The company is engulfed in a monumental corruption scandal involving billions in inflated construction contracts and implicating scores of executives and politicians. Bendine, who has been running *Banco do Brasil*, is closely tied to Rousseff's Workers' Party, which has turned Petrobras into a piggy bank for pet programs. His reputation is further clouded by an investigation into irregular loans and a large unexplained fine he paid to Brazil's tax agency in 2012. Bendine has denied any wrongdoing.

Of course, even if Rousseff had named market-friendly executives to Petrobras's top management, they would still be reporting to her, which is enough to make the market nervous. As the chairman of Petrobras from 2003 to 2010, she a) didn't see, b) chose to ignore, or c) took part in the deals that have caused it to rack up more than a billion dollars in alleged graft losses.

Since taking power in 2002, the Workers' Party has steadily eroded Petrobras's managerial autonomy, a process that accelerated with the 2007 discovery of enormous oil deposits off the coast of Brazil. Now the only thing that can reassure Brazilian investors and restore Petrobras's luster is a reversal of the most damaging policies the administration has put in place.

The recent plunge in oil prices may provide the opportunity. It's already stanching the more than \$44 billion in operating losses that Petrobras incurred after the government, desperate to curb inflation, forced the company to sell gasoline to consumers at a loss. Low oil prices also give Rousseff cover to revisit the 2010 law that restricts foreign participation in new production in offshore fields—by limiting how much foreigners can invest, setting onerous requirements for using more expensive made-in-Brazil drilling equipment, and giving the government oversight of joint-production agreements. Petrobras doesn't have the resources to exploit these huge fields on its own; it needs foreign partners.

Meanwhile, even as the investigation into alleged kickbacks from a construction cartel to Petrobras executives and politicians grinds forward, Rousseff needs to push ahead with her pledges to carry out new anticorruption laws, especially reforming campaign finance. Extending the five-year statute of limitations on investigations by Brazil's securities regulator would also help. So would enacting real protections for whistle-blowers.

The good news is that the continuing Petrobras investigation depends not on Rousseff or the company's chief executive, but on a team of aggressive young prosecutors. With their willingness to go after construction company executives and haul some away in handcuffs, they are breaking new ground in the country's fight against corruption.

## The Wrong Way to Fight Homelessness

A new definition will increase numbers but not funding

When it comes to America's homeless, there isn't enough government help to go around. This grim truth has led to a bipartisan congressional proposal for a new strategy—but the approach wouldn't do anything to help and would do more harm than good.

Senators Dianne Feinstein of California, a Democrat, and Rob Portman of Ohio, a Republican, have proposed a bill that would greatly expand the federal government's definition of "homelessness." Merely redefining a problem, however, is an empty gesture unless it's accompanied by a concrete effort to address it.

The bill would replace the U.S. Department of Housing and Urban Development's definition—which is used to allocate federal funding for programs for the homeless—with the one that's used by the U.S. Department of Education. The former consists of only those sleeping on the street or in shelters, who are counted during a "point in time" survey every January; the latter includes those who are temporarily living in motels or under other people's roofs.

This would increase the number of people eligible for additional housing assistance under HUD's homelessness prevention program, called Continuum of Care, by more than 3 million, including more than 1 million children. But because the bill comes with no additional money, the increase could make it harder for those most in need of assistance to get it.

If federal dollars remain constant but the number of homeless increases, then either fewer people will get assistance, as a percentage of the overall population of homeless, or the same number of homeless will get less assistance. From a practical standpoint, because they would be competing with more people for the same resources, the homeless sleeping on the street or in shelters would be worse off.

Supporters of the bill apparently believe that the existence of more homeless people will make it easier to argue for more federal funding. Maybe they're right. In the meantime, however, the worst-off of the homeless could be forced to suffer even more than they do now. **B**

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Japan's shock, grief, and anger over the recent beheadings of two of its citizens by Islamic State has drawn into sharp focus the country's ambivalence about the use of its military to protect its citizens and its interests. For decades, Japan was bound by its 1947 constitution to mobilize troops solely for self-defense. The country didn't have the legal right to send armed troops abroad to protect its own people or back up allies who come under attack.

Prime Minister Shinzo Abe is determined to change this Cold War arrangement, which was imposed by the U.S. during its postwar occupation of Japan. Today the country faces a far more complex set of threats than the Soviet invasion that it feared 70 years ago. Islamic State has pledged more attacks to punish Japan's decision to extend \$200 million in humanitarian aid to countries battling the extremists who hold sway over large sections of Syria and Iraq.

Japan has also verbally clashed with China in a territorial dispute over islands in the East China Sea. And on Feb. 7, North Korea announced it had tested an "ultraprecision" antiship rocket near Japan's maritime border. "The world is now a pretty complicated place, and denying yourself a reasonable defense and cooperative logistics with your allies is placing yourself at greater risk," says Lance Gatling, president of Nexial Research, an aerospace consultant in Tokyo.

Abe, a defense hawk and the scion of a prominent political family, has embarked on an overhaul of national security strategy. In an historic step, his cabinet last year approved the exports of military equipment and conducted a legal review that concluded Japan had the right to deploy its military power abroad to protect its citizens and back up allies under attack. In addition, the cabinet favored loosening limits on when Japan's Self-Defense Forces could use deadly force during United Nations peacekeeping operations and international incidents near Japan that fall short of full-scale war.

In April the Diet is expected to debate a package of bills from Abe's coalition government that would create a legal framework for Japan's Self-Defense Forces to project its

## Japan Gets Ready To Fight

- ▶ Abe wants to unshackle Japan from its postwar pacifism
- ▶ "The world is now a pretty complicated place"

## Shopping List

In January, Japan approved a record

# 4.98 trillion-yen

defense budget. That's about \$41 billion—less than one-tenth what the U.S. spends annually. Japan is loosening the legal constraints on its Self-Defense Forces. Here's what Abe has in his shopping cart.

## 30

AAV7 amphibious vehicles  
20.3 billion yen

## 20

P-1 maritime patrol aircraft  
350.4 billion yen

## 6

Lockheed Martin F-35A fighter jets  
103.2 billion yen

## 5

Bell Boeing V-22 tilt-rotor aircraft  
51.6 billion yen

## 3

Northrop Grumman Global Hawk drones  
15.4 billion yen

Advanced Ballistic Missile Interceptor (SM-3 Block IIA; in development) 9.4 billion yen

Funding to strengthen and develop cybersecurity measures 9.1 billion yen

Funding for maternity dress uniforms 4 million yen

Residential sound insulation for communities near bases 39.8 billion yen

DATA: JAPAN MINISTRY OF DEFENSE FY 2015 BUDGET BILL

power overseas like a normal military. Defense Minister Gen Nakatani said the country is considering expanding its air and sea patrols over the South China Sea to track Chinese vessels in the area. If the government's efforts prevail, Japan will "contribute to regional and global security issues with less constraints on geographical limits," says Tetsuo Kotani, a senior fellow with the Japan Institute of International Affairs.

Abe isn't contemplating Japanese boots on the ground in Iraq or Syria or joint offensive operations with the U.S. anywhere else. He calls his initiatives "proactive contributions to peace." The Japanese public remains wary of foreign entanglements and rescue

Made by Japan's Kawasaki Heavy Industries

missions abroad. The same goes for the Komeito Party, the Liberal Democratic Party's partner in the coalition. Abe faces a heated debate in the Diet to get approval to provide rearguard support to the U.S. This is, after all, the country that last year celebrated the successful effort by a Japanese housewife to have Article 9 of the Japanese Constitution, which renounces war, nominated for the Nobel Peace Prize.

Japan's economic and fiscal woes, which Abe is trying to address, will make it difficult to significantly upgrade the country's military. In January the cabinet approved a record 4.98 trillion-yen (\$41 billion) defense budget that includes funding to purchase **Northrop Grumman** Global Hawk drones and F-35A fighter jets from **Lockheed**

**Martin**. Even so, that's less than a tenth of what the U.S. spends annually and less than half of China's defense tab.

Abe's approval rating clicked higher as a result of his handling of the hostage beheading crisis, his clear condemnation of Islamic State, and his plans to fund coalition countries fighting the extremist group. His more muscular security policy isn't playing as well in China. In a speech last year marking the 77th anniversary of the start of the Second Sino-Japanese War, Chinese President Xi Jinping criticized the Japanese for their tendency to "beautify the history of aggression." This came just weeks after Abe's cabinet had reinterpreted the constitutional defense provisions. South Korea, a Japanese colony from 1910 to 1945, has reacted cautiously to Abe's national security overhaul. Shi Yongming, an associate research fellow at the China Institute of International Studies in Beijing, says Abe has used the recent hostage crisis to push his military agenda forward. "Scrapping geographical limits for Japan's collective defense will be a big breakthrough for Abe," Shi says. "The move will be a big step further in Japan's attempt to re-emerge as a military power." Abe is setting new spending priorities with the Chinese in mind: Japan is building up its amphibious force and ability to retake islands.

The U.S. and Japan have collaborated on sophisticated

A missile co-designed with the U.S. to shoot down other missiles

Finland can't afford to be so caring 14

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Tsipras tries to take aim at Greek tax evaders 17

antimissile defense systems, including one that features a 21-inch projectile called the SM-3 Block IIA. It's bigger and faster than current antimissile projectiles and is also designed to take out low-orbiting satellites.

Last May, Washington and Tokyo discussed coordinating their GPS systems to better track what's going on in space and in the oceans. Japan has four spy satellites, and a group of Japanese companies led by **Sky Perfect Jsat Holdings** and **NEC** is building two communications satellites that will transmit encrypted data.

If Abe's national security makeover succeeds, Japan's evolution into a "normal state," as LDP strategists say, will get a big boost. —*Brian Bremner, with Ting Shi and Isabel Reynolds*

**The bottom line** Japan is spending a record \$41 billion on its military, which may soon have much more freedom to act.

## Jobs

## Finally, Good News for Workers at the Bottom

► Black teens, the poorly educated, and the disabled are landing jobs

► At this stage, "wage growth tends to be the strongest at the lower end"

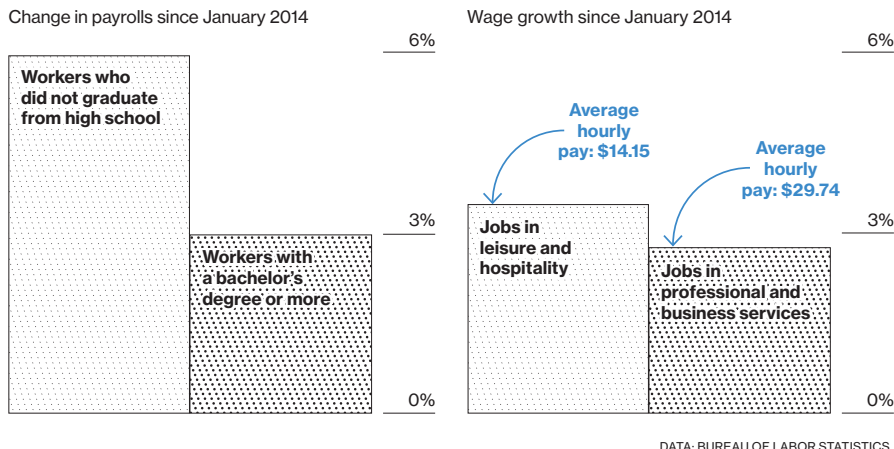
It's taken too long, but the U.S. economic expansion is finally benefiting people at the bottom of the ladder. Consider these stats from the Bureau of Labor Statistics' January jobs report: Employment of people without a high school degree rose 6 percent over the past year. Employment of black teens rose 18 percent. Employment of the disabled rose 20 percent.

There are some early signs that their bosses are paying a little better, too. In the low-paying leisure and hospitality sector, average hourly earnings rose 3.4 percent from January 2014, well ahead of the 2.2 percent rise for the overall labor force. (Mind you, the average in leisure and hospitality was still only \$14.15 an hour.)

The long-term forces that have hurt employment and wages at the middle ►

## Where the Job Market Is Improving Most

While payrolls and wages have climbed over the past year, workers with little education and jobs in low-paying fields are seeing the biggest gains.



◀ and bottom, including globalization and technology, are being partially offset by the upswing in economic growth. The economy added 1 million jobs from November through January, the best showing since November 1997.

Employers need to pay a little more to get the people they need to fill lower-wage jobs. On Feb. 6, before the January data came out, Michael Feroli, the chief U.S. economist of JPMorgan Chase, wrote in a report that “historically, as the labor market tightens the income distribution compresses, and wage growth tends to be the strongest at the lower end of the scale.” In an interview after the report, he said the rise of employment at the bottom could last as long as the expansion continues.

The best news in the January jobs report was the increase in the labor force, which grew by an estimated 700,000 from December to January after taking into account an annual revision in the size of the U.S. population. Not all the people who entered the labor force found jobs right away, so the unemployment rate rose to 5.7 percent from 5.6 percent. The influx of new job seekers means that the fruits of the expansion aren’t all being grabbed by incumbent workers; they’re being shared with people who are coming off the sidelines. “All the right things happened” in January, says William Spriggs, the chief economist of the AFL-CIO. He says labor force growth should ease the fears that employers will get into bidding wars for talent that cause an inflationary spiral in wages.

The main problem is that wages aren’t growing fast enough. Workers’

“usual” weekly earnings rose just 0.5 percent from late 2013 to late 2014 for people near the bottom of all incomes. That was scarcely better than the 0.4 percent hike for people near the top. So there’s a long way to go. High-powered job growth is at least pushing labor markets in the right direction.

—Peter Coy

**The bottom line** The economy has been growing fast enough and long enough for employers to hire overlooked workers.

## Austerity

### Finns Face Grim Choices In a National Election

- ▶ All the parties promise budget cuts and reduced benefits
- ▶ “We’ve been living beyond our means since 2000”

Just like in Greece, the main topic of Finland’s national election, in April, will be austerity. But the Finns have little or no chance to vote against it. All the major Finnish parties promise painful belt-tightening to keep public debt from ballooning as the economy struggles to expand.

The government debt of Finland has almost doubled since 2008, from 28 percent of gross domestic product to 48 percent at the end of 2014. Taxes have risen 3 percentage points over the same period as different administrations tried to preserve benefits without

resorting to deep cuts. The jobless rate this year will rise slightly to 8.8 percent, the government estimates. GDP languishes below its 2008 level.

Finland’s economy has failed to recover from a multitude of shocks in the last seven years. **Nokia** went from being the world’s biggest maker of mobile phones to making none, and the paper industry, Europe’s biggest, suffered as readers abandoned newspapers for the Web. A record-long recession in the euro region and a downturn in neighboring Russia have hurt exporters of all kinds. Government forecasts that economic growth would fix public finances proved unfounded. Finland has the fastest-aging population in Europe, and politicians haven’t figured out how to pay for the pensions and health care that the swelling ranks of retirees will need.

Among the first European nations to hold an election since anti-austerity party Syriza grabbed power in Greece, Finland may signal what’s in store for incumbents in other national elections in Europe. With ballots approaching in Denmark, Ireland, Spain, and the U.K., more voters may reject the status quo because they’re tired of governments’ inability to end the lingering effects of the financial crisis and to keep their promise to restore prosperity. Polls in Finland show the opposition Center Party winning the most votes, in part because it hasn’t held power in four years. “These elections will certainly be about the economy,” says Juhana Aunesluoma, the director of the University of Helsinki’s Network for European Studies. “Finland’s economic situation and outlook are so worrying that the Center Party keeps gaining popularity while doing practically nothing.”

In a Jan. 28 speech, the party’s leader, Juha Sipilä, didn’t hide his pessimism as he presented his party’s economic vision. He pledged to check spending and said he’d cut the budget to ensure outlays stay at the 2014 level. One target for cuts are Finland’s generous unemployment benefits. Sipilä says it will take another decade to revive the economy, and the country will need to scrap a goal of curtailing the growth of public debt by 2017. The party would seek to create 200,000 jobs under a to-be-unveiled plan that will mean more borrowing. “The situation is bleak, and this may be a longer endeavor than we realize,” Sipilä said.

"We built our welfare society on the assumption that we would have 3 percent economic growth permanently."  
—Prime Minister Stubb

Prime Minister Alexander Stubb sounds just as gloomy. "We've been living beyond our means since 2000," he said in a debate with other party leaders on Feb. 3. "We built our welfare society on the assumption that we would have 3 percent economic growth permanently." This year the economy is expected to grow 0.9 percent.

Finnish voters don't especially like the choices they face. Says Sirkka Kontula, a caterer: "The government proposes cutting jobless benefits to get the unemployed back to work faster—but what work? There is no work. It looks like those most in need in Finland are the least likely to get any help." —Kasper Viita and Kati Pohjanpalo

**The bottom line** Finns are grappling with the realization that their benefits are based on an unsustainable rate of economic growth.

## Consumers

### Collateral Damage From China's Antigraft Drive

► Drooping sales of prepaid cards are hurting retailers

► "This year, I think we will only have candies and nuts from the office"

As China prepares to welcome the Year of the Sheep on Feb. 19, Beijing's citizens are doing their best to celebrate as usual. Red paper lanterns with festive tassels are visible in stores and



homes. Trains are jammed with Chinese headed to the countryside to visit relatives.

Yet Beijingers like Yao Ting, a 29-year-old accountant at a large state-owned bank, expect this Lunar New Year to be less rewarding. In years past, companies, usually state-affiliated ones, often handed out prepaid gift cards to help pay for shopping sprees by employees at department stores and hypermarkets. But with the government of President Xi Jinping campaigning against corruption, many employers are now less generous. "This year, I think we will only have candies and nuts from the office," Yao says.

In his high-profile fight against graft, Xi is taking aim at the culture of bribery and kickbacks among the country's political and corporate elite, with more than 70,000 officials punished last year for violating anticorruption rules. The campaign is also taking a toll on a less obvious target: Chinese retailers dependent on the sales of prepaid cards. Denominated at 100 (\$16) to 1,000 yuan each, the cards were easy for companies to buy in bulk and give out to employees at festival time.

The cards also offered privacy, because company employees didn't need to provide any personal details when buying them or making purchases with them. Xi's graft busters have gone after these untraceable bits of plastic. In December the state-controlled media reported on an official in the southern city of Nanning who improperly handed out 100,000 yuan of prepaid cards.

People must now disclose their real names at the time of purchase, leading to second thoughts among many would-be buyers concerned about the ability of police to trace the movement of the cards. "If I am a corporate [official] and I purchase a large amount of cards, they can ask, 'Why are you buying so many and who are you giving them to?'"

explains Anita Chu, an analyst in Hong Kong with Bocom International Securities, a subsidiary of the state Bank of Communications. "That," she adds, "might create a problem."

The drop in demand for the cards is causing a chill at **Sun Art Retail**, a Shanghai-based operator of hypermarkets that's a joint venture between France's **Auchan**

and Taiwan's **Ruentex** (a hypermarket combines a supermarket with a mid-level department store). With more than 370 stores nationwide, and estimated revenue of 93.7 billion yuan, Sun Art is one of China's most powerful retailers. As prepaid-card sales dropped, the company's Hong Kong-listed shares lost 29 percent of their value in the past year. The benchmark Hang Seng gained 9 percent.

Before the anticorruption campaign, about 17 percent of Sun Art's sales were from cards that shoppers used in its stores. During last year's mid-autumn festival, a traditional holiday and popular time for shopping, sales of Sun Art's cards dropped almost 20 percent. The decline is especially worrisome because consumers would often spend more freely when using cards, says Bruno Robert Mercier, Sun Art's chief executive officer.

29%

Decline in price of Sun Art shares in 2014 after its prepaid-card sales dropped

"When people were getting these prepaid cards for free, they were maybe a little less cautious than when paying in cash," he says.

Other retailers are seeing big drops in prepaid card-funded sales. Department-store chains **Parkson Retail**, **Golden Eagle Retail**, and **Intime Retail** had same-store sales declines of 4 percent to 7 percent last year, Chu says. Retailers are suffering in part from the slowing Chinese economy, which last year grew 7.4 percent, the weakest annual expansion since 1990. Stores are also feeling the heat from e-commerce competitors such as **JD.com** and **Alibaba**-owned Taobao. Yet Chu argues the slumping demand for prepaid cards is a "major driver" of the slide. Golden Eagle's Hong Kong-listed shares have dropped 17 percent over the past 12 months, Parkson's stock is down 30 percent, and Intime's is off 40 percent.

The anticorruption campaign is more than a year old and shows no sign of easing. The annual New Year's gala on television this year will feature a comic routine about corruption, the *Global Times* newspaper, an affiliate of the party-published *People's Daily*, reported on Feb. 8. Given the intensity of the campaign, many employers are skimping on New Year's gifts of all kinds. "It's a little bit difficult to tell what's

15  
新年快樂

◀ corruption and what's not," says Yougang Chen, a partner in Shanghai with McKinsey. So ordinary government officials and managers at state enterprises "are trying to play it safe." —*Bruce Einhorn, with Christina Larson*

**The bottom line** The Chinese government's antigraft campaign is hurting demand for prepaid cards sold by retailers.

### War

## Ukraine Tries Bonuses To Rally the Troops

▶ The country is still drafting its citizens, and some are running away

▶ "I guess the fierce Ukrainian resistance surprised the rebels"

Even as Russian President Vladimir Putin, German Chancellor Angela Merkel, and U.S. President Barack Obama try to negotiate an end to the conflict in Ukraine, the government of President Petro Poroshenko is proceeding with its largest mobilization since the war with pro-Russian separatists began last March. At least 50,000 reservists are being called up to boost the army to 230,000 soldiers by the end of 2015, according to two military officials.

On Jan. 27, presidential adviser Yuriy Biryukov reported that the mobilization was stalled in five western regions. More than half of the draftees in the Ivano-Frankivsk region didn't show up when called earlier that month. Many fled abroad. As other Ukrainian officials do, Biryukov issued his statement on Facebook. He later removed the post, but it was widely reported by the press.

Putin has invited the draft dodgers to Russia. Russian TV channels have run interviews with people claiming to be runaway draftees: At least one has been labeled an impostor by independent journalists. Videos of Ukrainian POWs being mistreated by the rebels have run on social networks, demoralizing future conscripts and their parents. Posing in one, a rebel commander known as Givi forces prisoners to chew their uniform insignia. He brandishes a sword before a line of kneeling prisoners, a reference to the beheadings by Islamic State.

"We are a target of a propagandist special operation funded by Russian

secret services," says David Arakhamiya, an adviser to the Ukrainian defense minister. He confirms the draft dodging but says Biryukov's statement reflects only the initial stage. Arakhamiya says the call-up is likely to improve as it continues through February.

An employee of a conscription center, who spoke on condition of anonymity because he's not allowed to talk to the press, says that disorganization, not Russian propaganda, is the main obstacle. The call-up system dates to Soviet times: Conscripts' names are not even computerized. "If someone's paper is buried deep in a drawer, this person is guaranteed not to be drafted," the source says. Up to half of call-up letters never reach the intended recipients. Arakhamiya says this description of the call-up system is "fairly accurate."

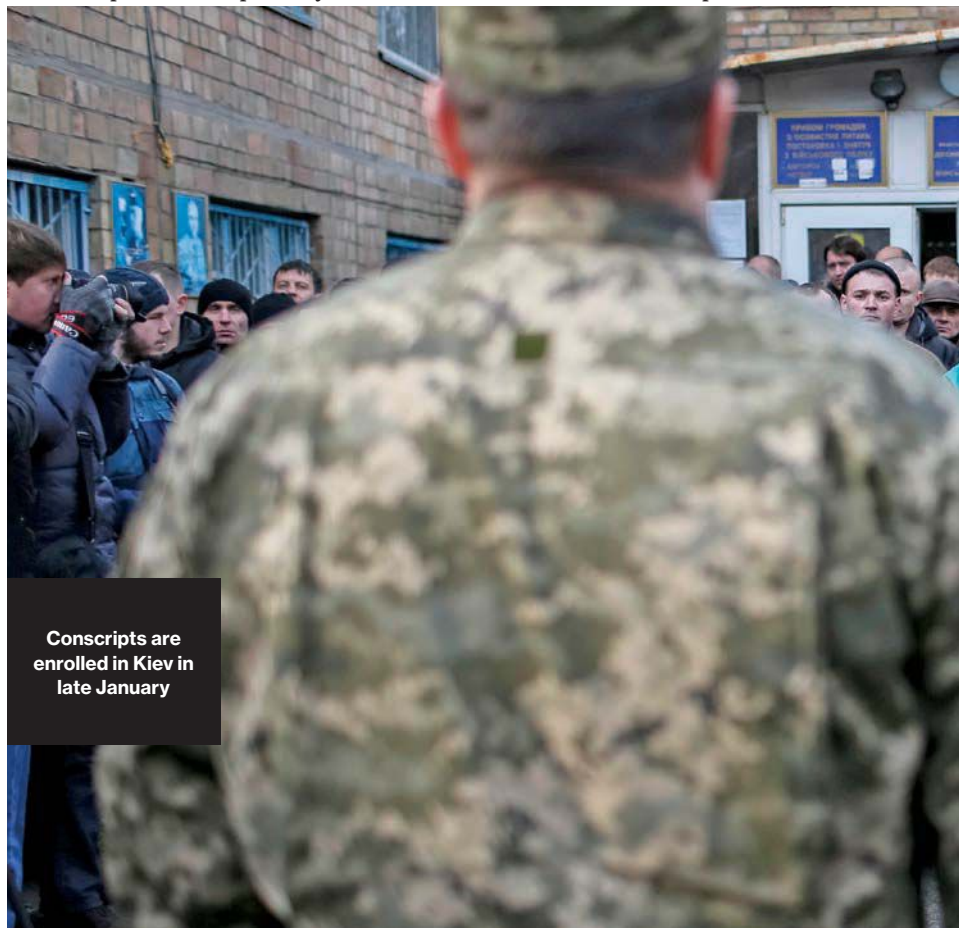
To counter rebel propaganda, the government has announced that soldiers will be paid 1,000 hryvnia (\$40) for each day spent in the war zone. Until now, frontline troops were getting from 2,500 to 7,000 hryvnia per month. Bonuses of as much as 121,000 hryvnia will be paid for each destroyed target, such as a plane or a tank. Ukrainian officials will use drones to verify reports of battlefield exploits. Ironically, the incentive plan was inspired by Stalin's

1942 directive to motivate Soviet soldiers, says Arakhamiya. The consequences for lying about one's exploits during World War II were dire. "People were executed for cheating the system."

The army has managed to contain the conflict within a small part of the country. Says Balazs Jarabik, a Carnegie Endowment expert on Ukraine: "Those troops fighting seem to have better equipment, better coordination, and high morale. I guess the fierce Ukrainian resistance surprised the rebels after they started their winter offensive." He adds that corruption and political meddling still pose problems.

The call-up center source says conscripts now get modern, NATO-style uniforms and gear. "Training centers [for draftees] have changed immeasurably in terms of living conditions and the quality of instruction," says Yevgeny Stepanenko, an officer who heads a mobile hospital at the front. There are more drones and night-vision goggles. Aid from Canada, purchases from NATO members, and better domestic equipment are strengthening the war effort.

The army welcomes the possibility of receiving U.S. weapons, but guns and ammo aren't lacking, thanks to arms depots the Ukrainians inherited when the Soviet Union collapsed. "We have



Conscripts are enrolled in Kiev in late January

enough to fight for another couple of years,” Arakhamiya says. Equipment to improve the precision of artillery strikes is in the highest demand. That means “more drones and real-time satellite data to identify targets and strike them before they move. The latter can change the course of the war in a day.” —Leonid Ragozin

**The bottom line** Only half of Ukrainian draft notices reach their intended recipients because of a system inherited from Soviet times.

## Budgets

### In Greece, Tax Evaders Are the Enemy

- ▶ The new government plans to audit every wealthy Greek citizen
- ▶ “I can’t accept that big employers aren’t taxed”

Greece’s new prime minister, Alexis Tsipras, is battling with German Chancellor Angela Merkel over his country’s demand for relief from a crushing austerity program and a mountain of debt. People like Angeliki Katsarolia,

a waitress at the Julia Lounge Cafe in Omonia, a rundown neighborhood of Athens, want to see Tsipras win that battle by going after rich Greek tax evaders and their companies. “I pay my taxes straight from my wages,” says Katsarolia. “I can’t accept that big employers aren’t taxed. They have to pay their taxes, too.”

The endemic problem of getting more Greeks to pay their taxes adds pressure on Tsipras, who’s trying to convince Merkel and other euro zone partners that he can put Greece’s fiscal house in order while raising wages and reinstating government workers. His pledge to snag Greeks who underpay or don’t pay their taxes helped him win. A day after the Jan. 25 election, figures from the finance ministry showed that revenue for the government last year was €51.4 billion (\$58.2 billion), lower than a €55.3 billion target, in part because of a €1.4 billion shortfall in tax revenue. “The great struggle is the struggle against tax evasion, which is the real reason our country reached the brink,” Tsipras told parliament on Feb. 8. Wage earners and pensioners have paid punishing taxes to plug an enormous budget deficit.

Germany is the largest holder of Greek debt in the region and essential to any compromise that will keep

Greece in the euro zone. Merkel’s government, however, remains skeptical that the new Greek leadership can find the evaders. German Finance Minister Wolfgang Schäuble, meeting his Greek counterpart, Yanis Varoufakis, in Berlin on Feb. 5, said he repeated his offer to send 500 German tax officials to Greece to tackle the problem, an offer that so far hasn’t been accepted. “We can well understand and support that the wealthy

# 24%

Portion of the Greek economy generated by businesses that don’t pay taxes

in Greece must also contribute, that the tax base gets broadened, and the efficiency of tax administration is improved,” Schäuble said.

Fixing the Greek tax system to make it more efficient and fair has had mixed

success since 2009, when the budget deficit first came to light. Tax evasion was estimated to cost the country €30 billion in annual revenue, according to a study that year by the Federation of Greek Industries. A 2012 study by the European Union estimates that 24 percent of the Greek economy was generated by businesses that don’t pay taxes. Greece clamped down by abolishing tax breaks and fining companies that don’t issue receipts, which help the government track sales and the taxes companies owe. Businesses are required to post signs in Greek and English saying customers don’t have to pay if they don’t get a receipt. Greece had one of Europe’s highest increases in tax revenue as a percentage of gross domestic product from 2011 to 2012, according to a Eurostat report last year. Yet collection remains below the EU average.

Tsipras says his government will compile a register of assets owned by each Greek citizen and audit those with significant deposits, including the so-called Lagarde list of 2,062 Greeks with deposits at a branch of **HSBC Holdings’** private bank in Geneva. And he named Panagiotis Nikoloudis, a former Supreme Court official who headed the Greek anti-money-laundering authority, as minister of state for combating corruption.

—Maria Petrakis

**The bottom line** Despite a clampdown by the government, tax evasion by wealthy Greeks is still hobbling the country’s recovery.





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## It's Raining Cars in China

► Automakers have been successful at adding factories. Maybe too successful

► “When you get...too much capacity, there’s just not enough growth to sustain everybody”

When consultant Bill Russo visited **Chery Automobile**’s headquarters in China’s eastern Anhui province about three years ago, he listened to the company’s plans to expand its factories to make as many as 1 million vehicles a year. But demand didn’t grow as planned. So Chery today has the capacity to make 900,000 vehicles annually—twice the number of cars it sold last year. Sales have slumped by one-third since their peak in 2010.

“Chery is a classic case” of overcapacity, says Russo, a former Chrysler executive who’s now a Shanghai-based

managing director at consultant Gao Feng Advisory. “The pressure is that once they receive the permission [from government authorities] to build, they feel like they have to build.” Chery didn’t respond to requests for comment about its sales falling short of planned capacity.

Domestic and foreign-based carmakers are building more factories in China than anywhere else, a construction binge that risks hurting margins in what remains one of the world’s most profitable vehicle markets. By 2017 there will

be 140 car production plants in China, vs. 123 at the end of 2014, estimates JSC Automotive Consulting.

According to IHS Automotive forecasts, factories across the mainland in 2015 will be able to build 10.8 million more vehicles than will be sold in Greater China. In North America, however, IHS expects plants to churn out about 3.2 million more cars this year than the factories were intended to produce when they were built.

Overcapacity is only expected to ►

◀ get worse for Chinese carmakers. China will have about 11.4 million vehicles' worth of idle capacity by 2017, more than double that of European automakers, according to data from JSC and Deloitte Consulting.

Some carmakers already are regretting plans for Chinese plants that will

140

Estimated number of auto plants in China by the end of 2017, up from 123 at the end of last year

open in the next few years, says Jochen Siebert, Shanghai-based managing director of JSC, who declines to name the companies. "But that decision has been made," he says. "It's done; they cannot backtrack."

Plans for most of the factory space built in China in the past few years were put in motion during the global recession, when China proved to be a godsend while **General Motors** and **Chrysler** were being bailed out by the U.S. taxpayer and Europe's auto sales seemed in free fall. The trouble is, too many carmakers sought the same refuge.

"When you get too many competitors with too much capacity, there's just not enough growth to sustain everybody," says Thomas Callarman, Shanghai-based director of the China Europe International Business School's Centre for Automotive Research. "They're all smart people, and they look at the right things, but I think they read the tea leaves wrong."

For now, the China car market remains profitable. Chinese automakers accounted for 7 of the 10 carmakers with the highest profit margins in the world, with **BMW's** Chinese partner, **Brilliance China Automotive Holdings**, topping the ranks at 82 percent in the past year, according to data compiled by Bloomberg Intelligence. **Toyota Motor's** margin was 7.6 percent. **Hyundai Motor** and **Volkswagen's** Audi count China as their largest market, with Subaru maker **Fuji Heavy Industries** standing out as the only car manufacturer among the 10 most profitable that doesn't have a factory in China.

Foreign carmakers have been among the most enthusiastic factory builders in China, with Hyundai, **Renault**, and **Fiat Chrysler Automobiles'** Jeep among those that have announced plans or are already building in China.

GM will soon sell Buicks made at a

plant that opened last month, with plans to open a Cadillac factory later this year. GM has 22 factories on the mainland. Volkswagen, which is vying with Toyota and GM for the global auto sales crown, has 28 plants in China and will open three more within the next few years.

Jochem Heizmann, who heads Volkswagen's China business, told reporters in November that the automaker has decided to expand its China capacity to more than the previously targeted 4 million autos a year by 2018 because it couldn't build enough to keep up with demand.

In the next few years, however, increased competition amid slowing growth in car sales will result in lower prices, says Yang Yipeng, a Beijing-based analyst at Goldman Sachs's Chinese affiliate. As the world's second-largest economy cools, vehicle sales are forecast to expand this year at just half of 2013's 8 percent growth, to 21.3 million passenger vehicles. General Motors President Dan Ammann said in January that he expects China's sales expansion to slow over the next few years after being the main engine for the global industry's growth for 15 years. Volkswagen in November also said the pace of expansion is becoming "more normal" in China.

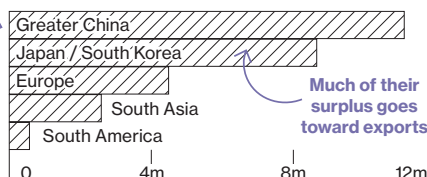
The spare capacity may force carmakers to increase sales incentives, hurting profit margins, Barclays says. "This is a heavy asset industry," says Song Yang, an analyst at Barclays. "When utilization trends down, margins will trend down." Already, car dealerships in China are asking for financial support and lower sales targets from carmakers after a combination of rapid expansion of sales networks and increased restrictions on vehicle ownership by city governments hurt their profits. BMW agreed last month to pay 5.1 billion yuan (\$815 million) to its dealers. Toyota will give \$200 million to the

China's spare capacity surplus has jumped 83 percent in the last two years

sales targets from carmakers after a combination of rapid expansion of sales networks and increased restrictions on vehicle ownership by city governments hurt their profits. BMW agreed last month to pay 5.1 billion yuan (\$815 million) to its dealers. Toyota will give \$200 million to the

### Too Many Auto Factories

Difference between the number of cars each region's factories can produce and its projected 2015 sales



DATA: IHS AUTOMOTIVE

dealers of one of its joint-venture partners, **FAW Group**, while Renault, which is building a plant that opens in China next year, said it will give its distributors more rebates.

—Alexandra Ho

**The bottom line** By 2017, plants in China will be able to produce 11.4 million more cars than will be sold there, JSC Automotive forecasts.

### Shipping

## Changing Flags to Use India's Ship Graveyard

▶ Vessels are switching their nation of registry to avoid EU restrictions

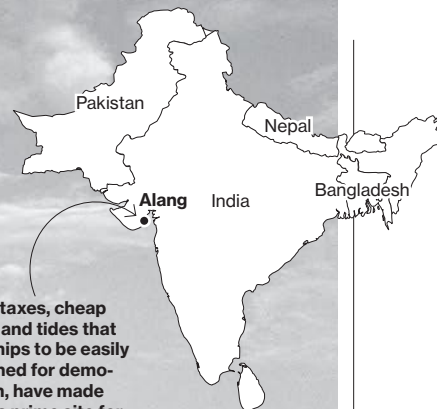
▶ "This is international hazardous waste trade"

The container ship *MV Justus*, built in 1995 by Polish shipyard Gdynia Stocznia, spent most of its 19 years plying the seas with a European pedigree. It was first owned by a German ship fund run by Hamburg-based asset manager **König & Cie**. But like a growing number of aging vessels, the *MV Justus* changed its nationality only months before being taken out of service. In doing so, it avoided a late 2013 measure by the European Union that banned ships registered in its 28 member nations from using dangerous tidal beaches for ship demolition work.

On July 9, 2014, the ship changed its flag to that of the tiny Caribbean island nation of St. Kitts, according to data from NGO Shipbreaking Platform, a coalition of environmental, human rights, and labor rights organizations working toward safe and clean ship recycling. Then, after starting a journey from Las Palmas in the Canary Islands on July 15 and sailing through Port Said and Dubai, data compiled by Bloomberg show, it ended up on Aug. 17 near Bhavnagar, off the coast of the Indian state of Gujarat—defying a year-old restriction from the EU. On Aug. 28, now under an owner called **Malwi Ship Breaking**, according to Indian government data, the *MV Justus* docked at Alang, the oft-times dangerous yard where the world's ships go to die. True to form, about a month later a worker was killed when he fell from a high ladder while breaking up the vessel. Another was severely injured.

König & Cie. spokesman Detlef Seiler said via e-mail that the ship had declared

Much of the dismantling of ships at Alang is done by hand—without safety gear



Low taxes, cheap labor, and tides that allow ships to be easily beached for demolition, have made Alang a prime site for shipbreaking

insolvency. “The sale for scrap was entirely in the hand of the [insolvency] administrator and the financing bank,” he said, and König & Cie. wasn’t involved in the ship’s flag change. Calls to a number for Malwi went unanswered.

Alang’s 11-kilometer (6.8-mile) stretch of land has become the world’s largest yard for what’s known as shipbreaking, the dirty, deadly work of tearing apart massive vessels so that their steel and scrap can be sold or junked.

Despite the EU ban, European ships keep coming to Alang. Some change their registrations, or flags, to countries without such rules just before reaching Indian waters. “There are special kinds of flags” valid for a few months that don’t require an operator to set up shop in the issuing nation, says Patrizia Heidegger, executive director of Brussels-based Shipbreaking Platform, and “they are particularly cheap for a last voyage.”

Besides St. Kitts, the flags come from such places as Comoros, Nevis, and Tuvalu, Heidegger says. Although it could be used by shipowners to sidestep current EU regulations, the process of changing registration is not illegal. Vishwapati Trivedi, India’s shipping secretary, did not respond to interview requests. Nitin Kanakiya, the secretary of India’s Ship Recycling Industries Association, says many owners register their ships in such havens as the Bahamas, Liberia, and St. Vincent for their stricter privacy laws, not in attempts to escape safety rules. Jakub Adamowicz, a spokesman

for transport at the EU, didn’t respond to an e-mail seeking comment.

In Alang, about 1,200 kilometers from New Delhi, barefoot workers manually break up ships, exposing themselves to toxins including asbestos and lead. As workers without protective gear toiled on one hulk recently, explosive gas cylinders scavenged from other dying vessels lay about nearby. “This is not shipbreaking, this is international hazardous waste trade,” says Gopal Krishna, founder of ToxicsWatch Alliance, a nonprofit activist group. “This is transfer of toxics from developed nations to a developing nation.”

In 2014 as many as 181 European ships were beached in Alang, says Shipbreaking Platform, which compiles the data from ship buyers, other nonprofits, and maritime databases. As many as 27 of them changed flags before entering Indian waters, it says. Ships entering India included oil and chemical tankers, according to Gujarat government data obtained by Bloomberg.

Fatal accidents are common in Alang. One morning last June, five workers were breaking up a chemical tanker when a blast near the ship’s engine room killed them. Two weeks later, Prime Minister Narendra Modi halved the tax on ships imported to be broken up, potentially boosting the \$2 billion industry that left at least 21 workers dead in 2014.

More than 130 shipbreakers operate at Alang, monitored by 12 safety inspectors. The EU requires that shipbreakers use gear such as cranes and provide medical

care for workers. But Indian companies say their safety standards are adequate. “We have our own safety mechanism in place, which is good enough,” says Kanakiya of India’s ship recycling association. “What the EU demands is completely unnecessary, and that will involve a lot of capital spending, which can make us economically unviable.”

The Federation of Ship Recycling Associations, a group of ship recyclers from Bangladesh, India, and Pakistan, will meet in Singapore in March to jointly oppose the EU ban, it said in a statement. —Anurag Kotoky

**The bottom line** European Union ships are barred from using India’s Alang beach for ship demolition, but many sidestep the restrictions.

## Brewing

### An Unlikely Tipple for Scots: Craft Beer

► Scottish brewers hope to mimic the success of small American brews

► “They want to forge their own identity as new and unique”

Scotland, the ancestral home of whisky, has also made beer for thousands of years, yet its brewing industry is a wee dram in the bucket compared with the \$7 billion export market for its namesake spirit. Now a handful ►

◀ of brewers from Glasgow to Argyll are looking for customers, distributors, and even employees in the U.S., where regional beers have become a \$14.3 billion industry.

"In America they've had a craft beer revolution. Here we've had a good beer evolution," says Stephen Crossland, founder of **Loch Ness Brewery**, a half-mile from the lake that's home to the mythical monster.



The emergence of Scottish brewers such as Loch Ness and **BrewDog** comes as Scotch has lost some of its edge. Exports fell 8.6 percent in the first nine months of 2014, according to Rabobank, and No. 1 distiller **Diageo** has slowed its investment in Scotch-making facilities.

To capitalize on a government campaign promoting Scottish food and beverages, eight brewers with combined sales of more than £30 million (\$46 million) in January formed The Brewers' Association of Scotland. Last October, 10 brewers traveled to Boston and Toronto to talk with North American brewers and importers, including Jim Koch, chairman and founder of **Boston Beer**, brewer of Samuel Adams. The Scots' trans-Atlantic journey mirrors the one made in the 1990s by Koch and other early American craft brewers, who traveled to Europe to soak up some of the secrets behind German pilsners, English bitters, and Belgian ales.

Hops, which lend flavor and bitterness to beer, don't grow in Scotland, so early brewers there used heather and bog myrtle. Some still do: **Williams Bros. Brewing** in the port town of Alloa makes heather ale, known in Gaelic as *leann fraoich*. Another Williams Bros. ale contains fresh seaweed. "Scottish brewing offers something different than the craft beers from the rest of Britain, so you can understand why they want to forge their own identity as new and unique," says Martyn Cornell, managing editor of U.K. beverage industry publication *Propel Info*.

James Watt and Martin Dickie of Aberdeenshire-based BrewDog began selling their hops-infused Punk IPA in 2007. They once brewed a beer with 55 percent alcohol content, sewing bottles of it inside dead squirrels to generate publicity and thumb their nose at what they deemed the "monolithic corporate beers" made by such

brewers as **Anheuser-Busch InBev** and **SABMiller**.

BrewDog has exported to the U.S. since 2008—sales outside the U.K. rose 49 percent last year—and it now wants to hire a U.S.-born brewer. It's not alone in tapping Yankee expertise. Loch Ness, which will begin exporting to the U.S. this year, has teamed with Boston area-based **Cambridge Brewing** to create Loch Ness Monstah, which Cambridge will sell at its brewpub.

Whisky also presents an opportunity for Scottish beer. The basic ingredients in both are similar—malted grain, yeast, and water—and whisky begins its life as something called wash, also known as "distiller's beer." Some craft brewers have started barrel-aging their beers in casks that once held whisky, a trend that plays right into the Scots' hands. "Whisky drinkers are well-heeled and don't want to be seen drinking a beer," says Loch Ness's Crossland. "But we've educated them that there is premium beer." In fact, he argues, referring to the transformation from distiller's beer to the harder spirit, "whisky takes good beer and ruins it." —*Matthew Boyle*

**The bottom line** Whisky exports fell 8.6 percent in the first nine months of 2014. Brewers hope to expand the Scots' footprint overseas.

### Crafts

## Will Etsy Come Undone By Success?



▶ An IPO has sellers worried that they won't be able to compete

▶ "It's about real businesses—we're not just crafters"

Wall Street may be salivating over **Etsy's** prospective initial public offering. Cherri Rodriguez is worried. Rodriguez, who has been selling hand-crocheted Rasta hats on the crafts site for a decade, frets that once the Brooklyn

# \$2b

Estimated value of Etsy IPO

(N.Y.)-based company goes public, investors' appetite for growth will make doing business there harder for smaller merchants. The IPO is expected as soon as this quarter, according to people familiar with the plans, and Etsy could be valued at \$2 billion.

The offering, sellers worry, could encourage Etsy to increase the cost of listing products on the site and raise the company's commission. Merchants have taken their worries to the site's forums. "What this means is the small shops become more and more insignificant and the bottom line more critical to grow," a seller named Harriet wrote. "I also expect fee hikes to raise revenue from listings and sales and things once free will have added fees."

News of the IPO broke 16 months after Etsy changed its guidelines, allowing sellers to outsource manufacturing. Many merchants saw the change as the first step toward a more profit-driven marketplace that in time might erase Etsy's artisanal ethos.

"There's a natural tension between scale and craft," says Max Wolff, the chief economist at Manhattan Venture Partners, an investment firm that focuses on late-stage private technology companies. "What investors want is scalability and profit margins and growth. What it means to be an artisan is no scale. They want intimacy."

Etsy has struggled with this paradox for a while. Rob Kalin, who co-founded the company in 2005, set out to create a marketplace where small-time crafters could sell their wares to consumers tired of the cookie-cutter sameness of retail. Etsy caught on and became the go-to place for such items as cat-shaped sleep masks, bottle-top belts, and barnwood coffee tables.

Kalin liked to say the site was all about the little guy and dismissed those who wondered if Etsy was scalable. In April 2011, in a cover story for *Inc.*, he said that trying to maximize shareholder value was "ridiculous." "I couldn't run a company where you had

to use that as an excuse for why it was doing things,” he said in the article. Kalin stepped down as chief executive officer in July 2011. The company announced his move in a blog post by then-Chief Technology Officer Chad Dickerson, who replaced him that month. Kalin didn’t respond to a request for comment. His successors have made changes, the most controversial of which has been allowing sellers to outsource some production to manufacturers.

Three years ago, Rebecca Saylor left her job as a corporate recruiter in the technology industry and set up a shop on Etsy selling \$50 owl pillows that she sews in her San Francisco home. With her business background, Saylor is no artsy idealist, and she recognizes that Etsy needs to find sources of growth. Still, she thinks it’s become too corporate. When sellers were first allowed to outsource production, she says, products similar to her pillows flooded the site at lower prices. Sales of her pillows have fallen about 15 percent over the past 16 months, she says. “How do we make this Etsy situation work for us, and what do we need to do to develop and grow real businesses?” she asks. “It’s about real businesses—we’re not just crafters.” Etsy declined to comment.

Etsy said when it announced the new manufacturing guidelines that they were meant to help artisans who wanted their businesses to grow. Outsourcing production, shipping, and fulfillment has helped make some sellers six-figure success stories, the company said. It charges sellers 20¢ per listing and a 3.5 percent commission. By increasing the number of merchants on the site, Etsy generates more transactions and fatter profits. “Companies that don’t evolve don’t grow,” says Lise Buyer, the founder of Class V Group, an IPO advisory firm in Portola Valley, Calif.

Rodriguez hopes merchants will band together to protect their businesses. She has started a campaign for them to buy \$1.5 million worth of Etsy shares. “We need to stand up, we need to be noticed, and we need to be sustainable,” she says. —*Leslie Picker, with Bree Taylor*

**The bottom line** Longtime Etsy sellers say they recognize the need for the site to grow but worry they’ll be pushed aside after an IPO.

## Briefs

By Kyle Stock

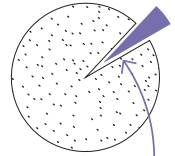
# Spider-Man Stretch

●🕷️● Sony and Walt Disney struck a deal to reunite Spider-Man with his fellow Marvel superheroes. The two studios will co-produce the next Spider-Man film, scheduled for a July 2017 release. Disney’s 2009 purchase of Marvel has produced a string of hero-driven hits, while Spider-Man, whose rights remained at Sony, has struggled. The most recent installment, 2014’s *The Amazing Spider-Man 2*, grossed \$203 million in U.S. ticket sales, half as much as Sony’s 2002 movie about the web-slinger. As part of the deal,

Disney agreed to push back four of its superhero films. ●⚽● Sky retained rights to broadcast Premier League soccer in the U.K., but it paid dearly for the privilege. The London-based company will shell out \$6.4 billion to show games from 2016 to 2019,

an 83 percent increase over its current rate. *BT Group*, whose competition drove the bidding higher, will spend \$1.4 billion to broadcast one-quarter of the matches in the period. ●📶● Qualcomm said it would pay a \$975 million fine for alleged antitrust violations in China. The chipmaker gets most of its profit from patent royalties paid by smartphone makers that use its chips. Qualcomm said it was disappointed but agreed not to contest the fine. ●🛢️● Halliburton said it would cut up to 8 percent of its global workforce, some 6,400 positions, as declining oil prices crimp demand for its drilling services. That’s a big jump from the 1,000 job cuts it announced in December.

●📺● Jon Stewart will leave Comedy Central’s *The Daily Show* later this year after a 17-year run. Recently the Viacom-owned channel also lost Stephen Colbert and John Oliver to rivals. Comedy Central’s domestic ad revenue slipped 6 percent last quarter.



**Deloitte** named Cathy Engelbert, head of its accounting, auditing, and risk advisory business, as its first female CEO. That puts the share of women CEOs at Standard & Poor’s 500-stock index companies at 4.8 percent.

Adults who tuned in to the premiere of **AMC’s** *Better Call Saul*, a record for cable debuts. The series is a prequel to the network’s hit *Breaking Bad*, which drew 10.3 million viewers for its last episode, in 2013.

6.9m

**CEO Wisdom**



“You know 35 percent to 38 percent of global media consumption is happening online, and only 25 percent of spending is happening online. That gap is worth tens of billions of dollars.”

— Tim Armstrong, AOL CEO

February 16 — February 22, 2015

## Walking Away From Clean Coal

### ► The White House deals a blow to the coal industry

### ► “We don’t need it, and we can’t afford it”

On the banks of the Illinois River, about 60 miles west of the state capital in Springfield, an old coal-fired power plant sits waiting for its future to arrive. First opened in 1948, it’s been dormant since 2011, when its owner, St. Louis-based **Ameren**, shut down the plant rather than retrofit it to meet federal standards. Last year workers came to give it a makeover. Using almost \$1 billion in stimulus money, the project was supposed to become the poster child for clean-coal technology. Rather than spewing into the sky, the carbon dioxide produced as the plant burned coal would be captured into a pipeline buried below corn and soybean fields. It would run 30 miles east to Jacksonville, where the gas would be injected 4,000 feet underground. “It was like we were the phoenix rising,” says the plant’s director, Mike Long.

The resurrection was short-lived. On Feb. 3, the Department of Energy announced it was withdrawing support. Environmentalists who want investment in renewable power technologies rather than fossil energy cheered the decision. “We don’t need it, and we can’t afford it,” Bruce Nilles, head of the Sierra Club’s Beyond Coal campaign, says of carbon-capture projects.

President Obama has made addressing climate change a key part of his legacy. In November he struck an historic agreement with Chinese President Xi Jinping to reduce greenhouse gas emissions. The White House has backed solar and wind power projects and touted the benefits of the country’s surging production of natural gas, which burns about 50 percent cleaner than coal, still the largest source of electricity in the U.S. Last year the Environmental Protection Agency proposed tighter standards for existing power plants.

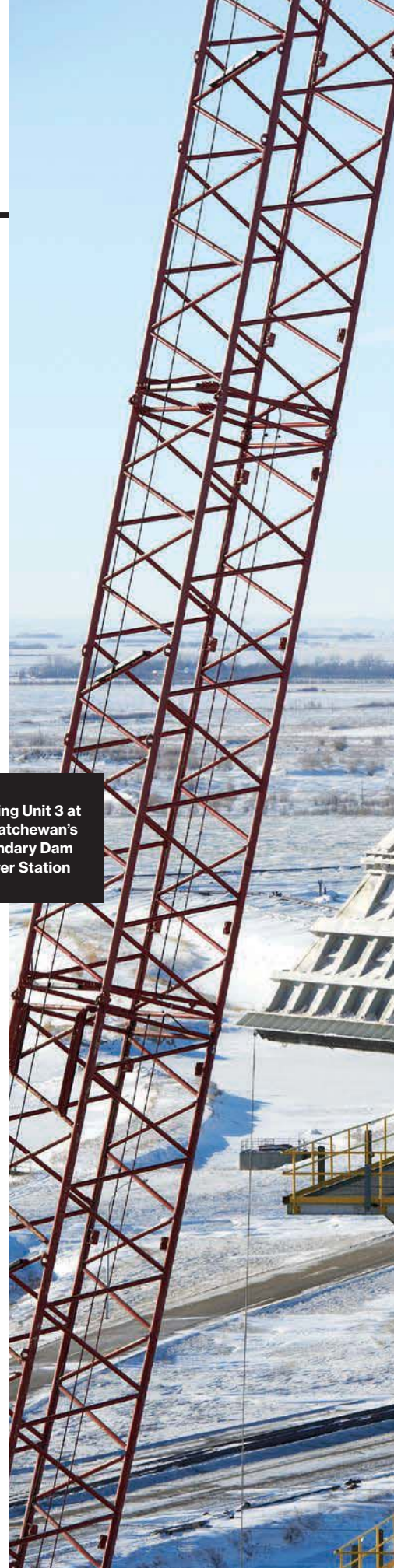
The Illinois project, called FutureGen, was supposed to be a model for coal’s climate-friendly future. It was backed by some of the world’s biggest coal mining companies, who created a nonprofit, the FutureGen Industrial Alliance, to oversee the plant’s conversion. The White House saw FutureGen as a way to show leaders in China and India, where coal fuels more than half of electricity generation, that they can address their own carbon emissions without compromising economic growth. About 40 percent of man-made carbon emissions come from power plants.

The White House says the decision to walk away from FutureGen doesn’t mean it’s abandoning carbon capture. Since 2009 the Department of Energy has invested \$6 billion in clean coal, and Obama included about \$2 billion in tax credits for carbon capture in his proposed 2016 budget. White House spokesman Eric Schultz said in a Feb. 6 briefing the decision is “absolutely not” a signal Obama is retreating. “The administration has shown unprecedented support for clean-coal technologies,” he said.

Yet Obama decided not to fight for FutureGen after Republicans in Congress refused in December to extend a September deadline for using the stimulus money allocated to the project in 2009. “It makes no sense to pull the plug on \$1 billion committed to America’s signature near-zero emissions power project at such a critical time for these investments in technology,” said Gregory Boyce, chairman and chief executive officer of **Peabody Energy**, the world’s largest private-sector coal company and one of FutureGen’s backers.

**SaskPower** opened the world’s first

Capping Unit 3 at Saskatchewan’s Boundary Dam Power Station



The high priestess of  
the Laffer Curve visits  
Illinois 26

Trustbusters don't  
always get mergers  
right 28

States question  
exemptions for  
vaccines 27

Charlie Rose talks to  
David Axelrod 29

Total cost

# \$1.2b

The Boundary Dam is a partnership between the governments of Canada and Saskatchewan and the private utility SaskPower

full-scale clean-coal plant last October, in Canada's Saskatchewan province. Known as Boundary Dam, the plant cost \$1.2 billion, \$190 million of which came from the Canadian government. Its emissions travel down a pipeline rather than up a smokestack. But Boundary Dam enjoys one key advantage over FutureGen: Rather than simply burying its emissions, it sells the CO<sub>2</sub> to an oil company, which injects the compressed gas into old wells to coax more oil to the surface—a process known as “enhanced oil recovery.” That turns the CO<sub>2</sub> into a marketable byproduct, creating a steady revenue stream that offsets some of the costs of putting a lid on emissions.

A similar project is under way in Texas, where **NRG Energy**, a utility in Houston, is leading a \$1 billion effort to build a clean-coal plant called Petra Nova. The project got \$167 million in federal funds. As part of the deal, NRG bought a stake in a nearby oil field. The idea is to inject Petra Nova's CO<sub>2</sub> emissions into the wells there, boosting production from 500 barrels a day to an estimated average of 15,000 barrels a day for 10 years. Selling that oil is “the only meaningful way for us to generate a return for shareholders,” says John Ragan, president of NRG's Carbon 360 group.

Pairing carbon capture with the enhanced recovery of crude oil is hardly a vision for a perfect clean-energy solution. It's another reason many environmentalists oppose clean-coal technology; it's also why FutureGen was so important to clean coal. If it worked, it would have demonstrated that carbon capture makes economic sense without having to rely on revenue from oil sales. As oil prices fall, financing clean coal through crude production has started to look like an increasingly shaky business model. In early February, **Schlumberger**, the world's largest oil-field services company, said in a statement that its carbon-capture unit has stopped taking on new business.

The four other clean-coal plants that are in the works in the U.S. are all designed to deliver their captured emissions to oil producers. With the exception of Petra Nova, they're all either behind schedule, over budget, or both. The cost of building **Southern Co.'s Kemper plant** in Mississippi, ▶

Total output

## 110

Megawatts of clean electricity, enough to power 100,000 homes

## 1.1m

Metric tons of carbon dioxide captured, annually—the equivalent of taking 250,000 cars off the road

Moving CO<sub>2</sub> Underground

The FutureGen coal plant was designed to feed emissions into a 30-mile pipeline

The pipeline was expected to carry **1.1 million** metric tons of carbon dioxide each year

1 mile

◀ which has received \$270 million in federal funds, is now estimated at \$6.2 billion, more than double its original price. The facility is scheduled to open in 2016.

In Texas, **Summit Power** is past its deadline to begin construction on a \$1.7 billion coal plant that's been awarded \$450 million in federal funding as well as more than \$600 million in tax credits. A plant in California that got about \$400 million in federal money, the \$4 billion Hydrogen Energy California project (HECA), is also behind schedule. Now that the Energy Department has pulled support for FutureGen, "I think both of those projects are likely dead," says Jim Wood, who served as deputy assistant secretary of Energy from 2009 to 2012 and now heads the U.S.-China Clean Energy Research Center at West Virginia University. A Summit spokeswoman says the company is rushing to complete financing and begin construction. HECA didn't respond to requests for comment.

The lack of viable clean-coal plants means the Obama administration will have to rely even more on boosting renewables and natural gas as a source of electricity to achieve its goals of cutting power plant CO<sub>2</sub> emissions by 30 percent by 2030. It also highlights why its 2010 cap-and-trade proposal for regulating emissions by power generators was so crucial. Congress failed to pass a bill that would have provided an estimated \$75 billion in incentives for coal plants using carbon-capture technology through 2030, and about \$177 billion through 2050. Without it, the administration has less to offer the utilities to get them to invest in clean-coal technology.

The struggles of FutureGen and other clean-coal projects create another problem for the White House's climate policy. The regulations the EPA is developing lower the amount of allowed emissions for coal plants to the point that it's impossible to build one without using carbon capture. In the absence of commercially viable carbon-capture technology, utilities may have an opening to challenge the new regulations in court, says Jeff Holmstead, a former senior EPA official under George W. Bush who now works at lobbying powerhouse Bracewell & Giuliani. The EPA has already extended the time frame utilities would have for complying with new emissions

standards. "I think there is a good chance they'll finalize a rule with a higher emission rate," Holmstead says.

—*Matthew Philips, with Mark Drajem, Annie Linskey, and Jim Snyder*

**The bottom line** The Obama administration cut off support for a clean-coal plant, making it harder to meet ambitious emissions goals.

## Budgets

### The Supply-Siders' Turnaround Artist

▶ A former adviser to Jeb Bush brings austerity to Illinois

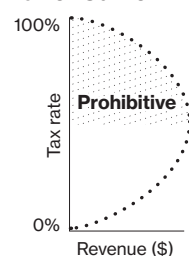
▶ "She's the high priestess of the Laffer Curve"

After private equity investor Bruce Rauner, a Republican, was elected governor of Illinois last November, many wondered how he planned to make good on his promise to fix the state's troubled finances. The answer? Donna Arduin, a business partner of supply-side economist Arthur Laffer. In January, Rauner named Arduin chief financial officer for his administration.

She's helped Republican governors shrink their state governments through tax cuts, privatization, and social spending reductions. There's plenty for her

to work with in Illinois. It faces a \$9 billion shortfall for the coming fiscal year, which begins in July. Illinois also has \$111 billion in unfunded pension liabilities, the biggest gap in the country. State agencies are

#### Laffer Curve



running out of money, and some programs face the possibility of shutdowns. "This is arguably the biggest turnaround in America and certainly the biggest turnaround I've ever been associated with," Rauner told an audience at the University of Chicago. He is scheduled

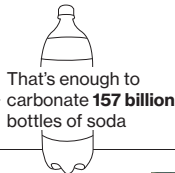
to present his first budget to the Democratic-controlled state legislature on Feb. 18.

Arduin is a founding partner of Tallahassee (Fla.)-based Arduin, Laffer & Moore Econometrics, a consulting firm that promotes the elimination of state income taxes. Like Laffer, whose namesake Laffer Curve shows higher tax rates can lead to lower overall tax revenue by squeezing economic activity, Arduin advocates austerity and smaller government. "I joined government to shrink it," she said in a 2006 interview with the alumni magazine of Duke University, where she graduated in 1985, about her experience in the public sector. Through a spokesman for the governor's office, both Arduin and Rauner declined to be interviewed.

In 1991, after a stint as an analyst at Morgan Stanley, Arduin was hired as a deputy budget director in Michigan, where Republican Governor John Engler faced a \$2 billion deficit. The state cut welfare payments to about 83,000 recipients. Arduin also introduced performance targets for state agencies. "She wasn't afraid to tell people their program didn't make sense," says Jeff McAlvey, who served as Engler's legislative director.

In Florida, where Arduin was budget director for former Governor Jeb Bush from 1999 to 2003, she pushed to close the state archive, privatize prisons, and eliminate the corporate income tax. Those ideas were rejected by the legislature. So was a plan to repeal property taxes, in exchange for raising the state sales tax. "She's the high priestess of the Laffer Curve," says Dan Gelber, who was the Democratic leader of Florida's House of Representatives. Even Republicans were put off. "She came in with a philosophy that sounded good but was extremely difficult to put in place," says Mike Fasano, a former Republican leader in the state House.

Arduin's experience in California, where she worked for former Governor Arnold Schwarzenegger in 2003 and 2004, was also mixed. California faced a deficit of \$15 billion when Schwarzenegger took office following the recall of Democratic Governor Gray



The plan was to inject it **4,000 feet** underground, burying it under layers of sandstone and salt

Jacksonville, Ill.

pertussis, has also seen a resurgence. Now legislators across the country

Davis. Arduin pushed Schwarzenegger to make deep cuts in social programs and funding for local governments, but the battle was marked by fights over reductions in aid to the developmentally disabled, as well as a proposal to end a state mandate that animal shelters keep stray dogs and cats as long as six days before killing them. State Senate leader John Burton, a Democrat, called Arduin an “ogre.” Soon thereafter, she placed a sign emblazoned with “OGRE X-ING” on her office door. “Democrats and Republicans had different visions of California’s future,” says Scott Graves, research director at the California Budget Project. Arduin left Schwarzenegger’s team in 2004 after 11 months in Sacramento.

Back in Florida, she advised Senator Marco Rubio during his time as speaker of Florida’s House of Representatives and former Florida Governor Rick Scott. Arduin and Laffer advised Oklahoma to eliminate its state income tax in 2011, saying it would “create a long-lasting economic boom, benefiting generations to come.” The Republican state legislature let that idea die. Laffer had more success in Kansas, where he persuaded Kansas Republican Governor Sam Brownback and state legislators to roll back the state’s income tax in 2012. Kansas faces a projected budget gap next year of \$600 million. Brownback, who’s no longer formally advised by

Laffer, on Feb. 10 signed into law cuts that would close

most of this year’s \$344 million deficit.

In Illinois, Democrats who control the legislative agenda are waiting to see what Rauner and Arduin offer. Rauner has said income and property taxes should be cut, but Arduin has proposed expanding the state sales tax base. “Given [Rauner’s] success in business, clearly he’s learned about compromise,” the Democratic head of the state House of Representatives, Michael Madigan, told reporters in early February. “That applies in government.” —*Tim Jones*

**The bottom line** Illinois Governor Bruce Rauner is turning to a supply-side advocate whose budget advice has produced mixed results.

## Public Health

### Measles and Mumps and Pertussis—Oh, My!

► Some states are making it harder to get vaccinations

► “That doesn’t sound like the freedom... our founders intended”

Since January, when measles was first reported at Disneyland in California, more than 120 people have been infected in the U.S. In early February a mumps outbreak that started at the University of Idaho spread to neighboring Washington state, infecting more than 20 people. Whooping cough, or

are moving to tighten laws that allow parents to skip vaccinating their children for religious reasons, or for no reason at all.

Medical experts say the exemptions have undermined the understanding public health officials have long had with American parents: Their children had to be vaccinated before they could go to school. “Over time we’ve seen a greater level of exemptions, and we’re seeing the natural consequences of those decisions,” says Robert Amler, a professor of public health at New York Medical College who worked on measles investigations at the Centers for Disease Control and Prevention in the 1980s.

There are no federal rules governing vaccination requirements. All but two states allow parents to cite faith or philosophy to be exempt from vaccine requirements established by health authorities for schools, day-care centers, and other child-care facilities. Lawmakers and bureaucrats in at least five states are working on legislative or administrative changes to limit those exemptions. Oregon State Senator Elizabeth Steiner Hayward, a Democrat, is drafting a bill to scrap religious and personal reasons for opting out of mandatory inoculations. “More and more people are questioning” the basis for the exemptions, she says.

Proponents of vaccine waivers argue that the nation’s values of personal liberty should outweigh a government’s mandate to parents. “To me that doesn’t sound like the freedom that our founders intended for the people of the United States,” says Oregon State Senator Tim Knopp, a Republican.

Even as the California measles outbreak spreads, legislators are seeking to expand exemption policies in a handful of states, including Colorado, where vaccination rates are the lowest in the country—81.7 percent for kindergartners last year. State Senator Tim Neville, a Republican, proposed a bill on Jan. 14 that would let parents choose not to vaccinate without requiring a religious objection. Neville didn’t respond to requests for comment. New York State Senator Martin Malave Dilan, a Democrat, introduced a bill on Jan. 13 to create a philosophical

Digit

3,415

Number of Americans who **renounced U.S. citizenship** in 2014, an annual record. More than 10,000 U.S. citizens living overseas have given up their passports since 2010, when a tax law gave the IRS information on Americans’ accounts at foreign banks.

An estimated 7.6 million U.S. citizens live abroad



◀ exemption. Through a spokesman, Dilan said he isn't opposed to vaccination but thinks religious people shouldn't be the only group allowed to opt out because of their beliefs.

Only West Virginia and Mississippi refuse all religious or philosophical exemptions, according to the National Conference of State Legislatures. West Virginia has the second-highest vaccination rate in the country. In January a dozen Republicans introduced a bill that would allow parents to begin claiming religious exemptions for vaccinations, prompting a public outcry. Three of the original sponsors have removed their name from the bill, which has been amended to lay out rules that apply only to people who claim medical excuses for skipping vaccines.

State Senator Chris Walters, one of the original sponsors, says he didn't read the draft legislation in its entirety before putting his name on it. "I have two children," he says. "It gives me heartache in any way to ease the vaccination restrictions." —*Anna Edney, Caroline Chen, and Doni Bloomfield*

**The bottom line** Many states are moving to tighten vaccine requirements, but some lawmakers are trying to defend exemptions.

## Monopolies

### A Staples-Office Depot Deal Might Be Too Easy



▶ A study of mergers shows many have led to price increases

▶ "We've drawn the enforcement line at not quite the right place"

If antitrust law were tag-team wrestling, the \$6.3 billion **Staples-Office Depot** merger agreement announced on Feb. 4 might be billed as the grudge match of the century. The first time the two companies tried to combine, in 1996, they accounted for less than 6 percent of U.S.

### Fewer Companies, Higher Prices

Average price effect for mergers, 1976-2006

Hospitals	+15.8%
Journals	+7.5%
Airlines	+6.4%
<b>All industries</b>	<b>+5.1%</b>
Petroleum wholesale	+0.7%
Petroleum retail	-0.2%

DATA: MERGERS, MERGER CONTROL, AND REMEDIES

sales of office supplies, yet the Federal Trade Commission, relying on a then-novel method of analysis borrowed from academic economics, concluded the combination would raise prices for some customers. In 1997 a federal judge issued a preliminary injunction that doomed the deal.

The current Staples-Office Depot merger presents a fresh enforcement challenge. The growth of **Amazon.com** and **Wal-Mart** since the last time the merger was proposed may constrain the ability of office superstores to raise prices. That would argue for approving the deal. On the other hand, there's less competition in the niche since 2013, when No. 2 Office Depot was allowed to swallow No. 3 OfficeMax. Letting No. 1 Staples eat its combined competition might leave it with excessive pricing power.

A new assessment of the government's record concludes the trustbusters haven't always anticipated which mergers will have anticompetitive results. John Kwoka, an economist at Northeastern University who has worked for the FTC and the U.S. Department of Justice, analyzed every postmerger study published in an academic journal for combinations completed between 1976 and 2006 for his book *Mergers, Merger Control, and Remedies: A Retrospective Analysis of U.S. Policy*.

Kwoka found prices of products and services rose a little more than 5 percent on average after the mergers were approved, vs. researchers' estimates of what prices would have been had the mergers been rejected. Kwoka argues a merger-induced price increase of any size is problematic. Five percent is the government's threshold for anticompetitiveness. In almost a fifth of the cases, prices rose more than 10 percent, which Kwoka says indicates "a serious policy mistake." Regulators are doing their best with the tools they have, Kwoka says, but "we've drawn the enforcement line at not quite the right place."

Kwoka's book has won raves from

some ex-enforcers, including Jonathan Baker, former director of the FTC's Bureau of Economics. Spokespeople for the Justice Department and the FTC said officials couldn't comment because they hadn't read the book. Dennis Carlton, an economist at the University of Chicago Booth School of Business and a former regulator, warns that tougher standards could inadvertently kill some deals that benefit consumers: "It is not possible to stop just 'bad' mergers," he says.

Kwoka says regulators are at least doing the right thing by judging deals based on quantitative evidence. It wasn't always that way. The two agencies periodically update the guidelines for how they evaluate "horizontal" mergers—those in which companies buy competitors. (In a vertical merger, they buy suppliers or customers.) The 1982 version was based on complex formulas for measuring industry concentration. But that's an imperfect indicator of pricing power. In theory, even a monopoly could be harmless if the monopolist doesn't dare raise prices for fear of encouraging rivals to enter the market.

In 1992 regulators put microeconomics at the heart of the merger guidelines, measuring the impact of mergers in terms of their effect on consumers. That requires analysis of voluminous pricing data showing how various types of consumers respond or don't respond to price changes in various sales channels. Economists hired as expert witnesses for the government in the first Staples-Office Depot case argued that checkout-scanner data showed prices at office-supply superstores were lowest in cities with three competing chains and highest in markets with only one.

Expect more such skirmishes this time. The key question: Do office superstores constitute their own market—that is, are they partially insulated from price competition, or do they compete for every sale with Amazon and other retailers in the broader market for office supplies? If the FTC finds that prices at Staples went up noticeably after the Office Depot-OfficeMax merger, it might nix the new deal. Then again, it might not. If Kwoka is right, the trustbusters have been a little too reluctant to body-slam bad deals. —*Peter Coy*

**The bottom line** An economist says regulators have failed to block mergers that wound up leading to price increases for consumers.

**B** Edited by Allison Hoffman  
Bloombergbusiness.com

# Charlie Rose talks to...

## David Axelrod

Obama's former top adviser discusses the president's path to the White House and leading contenders for 2016

**In David Gergen's review of your book, *Believer*, he asks if Obama would be president without you.**

The truth is, I'm not sure either of us would have gone forward in politics but for the fact that we came together at an existential moment in both our careers. He had lost a race for Congress and was making a decision about one more campaign. If he'd lost it, he'd told Michelle, "That's it. I'll be out of politics." This was around his Senate race in 2004. Field of seven, and he was not at all a front-runner. I told my wife, Susan, that if I could help Barack become a United States senator, that would be something I'd be proud of for the rest of my life. So I shunned some more lucrative offers and went to work for him.

**"Since the midterm election, I see a guy who seems reborn. There's a new bounce in his step"**

**Talk to me about Hillary and 2016.**

Remember, I worked for her once. She's a friend of mine, and I've known her for a long time. The Hillary Clinton of 2007 was a cautious, guarded, kind of cloistered front-runner. The Hillary Clinton of 2008, after she lost the Iowa caucuses, was a visceral, connected person who was close to the ground, spoke to the struggles of people. If she's that person in 2016, I think she's going to do very well.

**Suppose Jeb Bush gets the nod and his party is united behind him. What then?**

I've said consistently that if he gets the nomination, without subverting his view on issues like immigration reform, he could be a formidable candidate for the obvious reason:

All of a sudden, states like Nevada, Colorado, and Florida, with large Hispanic populations—and he's got a great kinship with the Hispanic community—are in play.

**How did he wind up giving the keynote address at the 2004 Democratic convention?**

Well, it wasn't an immaculate conception, I must say. We did campaign for that. We let it be known that we were interested in it. John Kerry had come [to Illinois] shortly after the Senate primary that Obama won. And Obama spoke at an event and got a huge response. Kerry filed that away and was prone to accept our petition to give this speech. We were driving around southern Illinois one day in the spring, and we got a call from Mary Beth Cahill, who was Kerry's manager. She said to Obama, "We want you to give the keynote speech." What I remember about it is him hanging up and saying, "I know what I want to say," instantly.

**You knew him before 2004. Did you see presidential potential right away?**

I met Barack in 1992 when a friend of mine, Bettylu Saltzman, called me and said, "I just met the most remarkable young man. I think he could be the first African American president." He'd just returned from law school. So I had lunch with him. I remember very clearly how impressive he was. I didn't walk away humming *Hail to the Chief*, but here was

a guy who had been editor of the *Harvard Law Review*, could have written his ticket at any law firm, been set for life. Instead, he came back to Chicago to run a voter registration drive.

**Was there anything Obama would have liked you to change in your book?**

I wrote about the first [presidential] debate [in 2012], the famous debate in Denver that was a disaster for us. It was a disaster because he didn't engage in many ways. And he pointed out, "You should have put in that book that you guys told me not to engage." And there's some truth to that, because he'd had some really bitter exchanges with John Kerry [role-playing as Mitt Romney] in our debate prep. We were concerned that he was going to come out and be kind of ornery and nasty to Romney. And we said, "You know, don't engage." So he was quite right about that. I actually had that in some earlier drafts. It dropped out.

**What's your assessment of Obama since the midterms?**

Since the midterm election, I see a guy who seems reborn. There's a new bounce in his step. He's very focused and enthusiastic, exhilarated by the things he was able to do right after the election: the deal with China on climate change, immigration reform, reaching out to Cuba.

# The Semiconductor



30

# Revolutionary

► Alex Lidow has spent much of his career developing a superefficient replacement for silicon

► “I can make this thing better, and I can make it cheaper”

Silicon has enjoyed some serious staying power. For going on 60 years, it's been the semiconductor of choice at the heart of transistors—the tiny switches that power the Information Age. A valley has been named after it. Many billion-dollar empires have been forged from it. And now—look away, silicon—it may finally be on the verge of being replaced.

The cool new semiconductor on the scene is gallium nitride, or GaN. Transistors made out of GaN can turn on and off faster and withstand higher voltages than those made from silicon. When you add these and a handful of other qualities together, GaN transistors—each slightly bigger than a grain of salt and sitting on tiny circuit boards

as pictured above—should allow companies to make smaller, faster, smarter, and more power-efficient products. While GaN transistors are not going into PC chips today, they are being used to improve performance in prototypes of self-driving cars and virtual-reality helmets and are paving the way for entirely new consumer-electronics and medical devices. Think wireless charging devices and X-ray pills. “Here’s a place where we actually have a new material and are looking at some applications that have not quite existed before,” says Stephan Ohr, the director for semiconductor research at Gartner.

The father of the GaN revolution is Alex Lidow, a physicist and chief

executive officer of **Efficient Power Conversion** (EPC) in El Segundo, Calif. Lidow, 60, has spent much of his career seeking a material that can perform operations faster and survive harsher conditions than silicon. Over the past two decades, he and dozens of other scientists have toiled to take GaN transistors from the experimental stage to the point where they can be produced at standard semiconductor manufacturing plants. EPC’s transistors are in only a handful of products. But over the past 18 months, production methods have improved enough for the technology to go more mainstream.

“For the first time in 60 years, I’m able to say, ‘I can make this thing better,

EPC's El Segundo headquarters is a long way from Silicon Valley



Gentrifying a rough neighborhood of the Internet 32

Crooks follow the money into mobile payments 32

Management advice from a twice-fired CEO 33

Innovation: A new layer of defense against cybercrime 34

and I can make it cheaper,” says Lidow.

In 1977, Lidow co-invented a type of silicon-based transistor known as a power MOSFET (metal-oxide-semiconductor field-effect transistor). This device, which costs about 17¢ a pop today, has been used to switch electronic signals in a huge range of products, from server power supplies to washing machines. One of the world's leading suppliers of MOSFETs is **International Rectifier** (IR), a company founded by Lidow's grandfather and father that became a \$3 billion business on the back of his invention. Much of the excitement around GaN transistors centers on their ability to replace MOSFETs and revolutionize the field of power management.

Because GaN transistors can be turned on and off faster than silicon-based ones, it's possible to control them more precisely. As a result, companies can make more efficient, smaller power conversion systems for use in industrial settings and the home. “Power supplies and adapters are all dying for a new, more efficient technology,” says Umesh Mishra, a professor of electrical and computer engineering at the University of California at Santa Barbara. A wholesale move to GaN-based transistors in these types of products, Mishra estimates, would save about 40 nuclear power plants' worth of electricity worldwide per year. “When talking about climate change, people often say you can't tackle waste without spending more money, but here is a case where that is not true,” he says.

The U.S. Department of Defense and the Department of Energy have sponsored

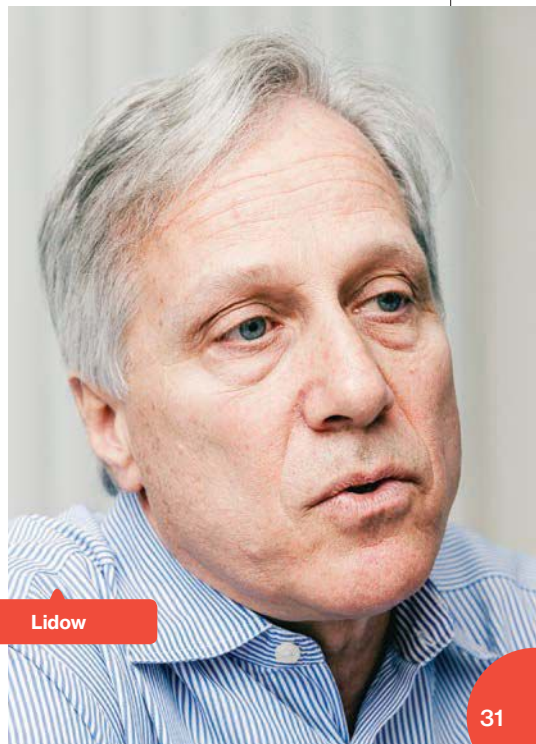
Mishra's work on GaN transistors for two decades, and they're already used by the military in radar and communication systems. In 2007, Mishra co-founded **Transphorm**, which sells GaN transistors for power conversion. Customers include India's **Tata Power Solar** and Japan's **Yaskawa Electric**. Transphorm is backed by more than \$125 million in funding from **Google Ventures** and **Kleiner Perkins Caufield & Byers**. Semiconductor heavyweights such as **Infineon Technologies** and **Panasonic** are also producing GaN transistors for power applications.

Lidow, unlike these rivals, is chasing novel, higher-profit uses for GaN transistors. “They're going after a big existing market,” he says. “We're creating new markets and actually generating new business.”

In 2007, Lidow resigned as CEO of IR. He took the fall, he says, when \$14 million worth of dodgy accounting turned up in the company's Japanese business. He couldn't get another job. “The recruiters told me I was toxic,” he says. So he decided to start his own company, EPC, and hired researchers who had been developing gallium nitride under his watch at IR.

Lidow and Archie Hwang, a Taiwanese businessman and owner of a semiconductor plant, each put about \$25 million into EPC and together own almost 99 percent of the company. IR and Lidow sued each other and then settled in June 2013. EPC agreed to pay royalties on the GaN transistors it sells. (Infineon acquired IR last year. IR didn't respond to requests for comment.)

This year, EPC expects to sell millions of its GaN transistors, Lidow says, priced from 40¢ apiece to a few dollars. They'll go into self-driving cars, where the high on/off switching speeds of the transistors help sense obstacles about 10 times faster than silicon transistors. Telecommunications equipment makers already use EPC's transistors to boost the signals of their wireless base



Lidow



stations. Consumer-electronics makers have put EPC's GaN transistors into their virtual-reality helmet prototypes. One company has built a GaN-based pill, expected to go on sale this year, which takes X-rays

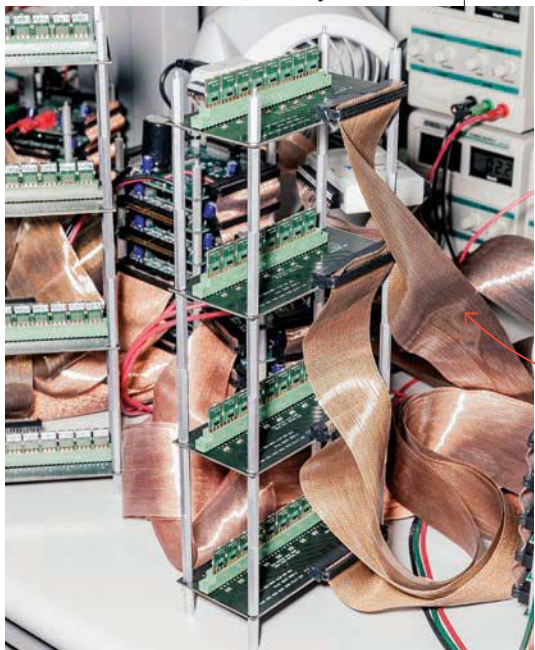
of people's colons and saves them from going through colonoscopies. Scientists were able to shrink the X-ray machinery to fit into the pill because the GaN transistors are so efficient. Lidow says he can't reveal all his customers for now.

Among those he names are **Microsemi**, a chip and electronics maker in Orange County, Calif., which is using GaN transistors in satellites, and **WiTricity**, a startup out of MIT, which has developed wireless recharging systems that can work at distances of several feet. Another customer is **FINSix**, which has built a laptop charger the size of a cigarette lighter.

Gartner's Ohr emphasizes that overcoming the inertia of the semiconductor industry won't be easy. While GaN has attractive properties, its

GaN transistors are examined under a microscope

Computers log how GaN transistors respond to heat



◀ advocates need to prove it has both dramatic performance advantages and major cost benefits. When it comes to things like PC and smartphone chips, industry inertia means silicon transistors are unlikely to be replaced for a very long time. But Lidow and others still see plenty of opportunity. Over the next few years analysts estimate that GaN transistors will take over about \$1 billion of the silicon-based transistor market, and Lidow thinks there's \$300 billion up for grabs from there. "I have a vision," he says. —*Ashlee Vance*

**The bottom line** Gallium nitride promises to replace silicon as the semiconductor of choice in transistors.

### Privacy

## Making the Internet's Onion More Appetizing



► Facebook and other big companies are moving onto TOR

► The "uncensored network feels more like the old Internet"

TOR has gained notoriety as the Internet's dodgiest neighborhood, where freedom fighters plot revolution and scoundrels sell drugs, swap child porn, or buy harvested organs. Now the hidden corner of the Internet is starting to gentrify as mainstream companies such as **Facebook**, **Deutsche Telekom**, and browser pioneer **Mozilla** seek to do business there.

TOR, an abbreviation for the Onion Router, was set up by the U.S. Naval Research Laboratory more than a decade ago to let U.S. operatives communicate securely and give people in authoritarian countries anonymity online. In recent years it's become popular with crooks, too. The network was home to Silk Road, the notorious online drug bazaar whose founder on Feb. 4 was convicted of U.S. charges of money laundering, computer hacking,

and conspiracy to traffic narcotics.

As the number of people using TOR quadrupled in the past four years, to about 2 million a day, companies began to see the network as an important place to reach consumers. TOR blocks advertisers, cookies, and other third parties from tracing users' IP addresses by randomly moving the data through a network of more than 6,000 computers. Facebook in October unveiled a website in the .onion domain—a special Web address that can be accessed only via the TOR browser. "TOR's uncensored network feels more like the old Internet," says Jamie Bartlett, head of social media analysis at U.K. policy researcher Demos.

Getting on TOR is relatively straightforward—a user simply has to download the TOR browser software. Mozilla wants to incorporate TOR into its Firefox browser. Publications such as the *Washington Post* and the *Guardian* have drop boxes on TOR where whistleblowers can submit tips anonymously. New York City lawyer Tor Ekeland (no relation), who specializes in Internet and computer cases, says he uses TOR to ensure client information and correspondence is confidential. "One of the top targets of a national security agency in any country is a law firm, because we have tons of confidential information on business deals," Ekeland says.

The corporate interest in TOR could eventually overload the network, which is equipped to handle 10 million users a day. Mozilla says its engineers are evaluating changes to Firefox to make TOR faster and easier to use. Andrew Lewman, executive director of the **TOR Project**, a nonprofit in Cambridge, Mass., that oversees the network, says his group is working with Mozilla to boost TOR's capacity, possibly by making every computer running Firefox part of TOR's network.

While Firefox and other browsers already have privacy features, such as the "Incognito" option on Google's Chrome, those settings typically do little more than delete passwords and cookies while continuing to give advertisers access to user data. Facebook and Mozilla declined to comment on their TOR plans beyond their published statements. Google didn't respond to requests for comment.

A presence on TOR will help corporations bolster their credentials among people interested in keeping the

"The possibility for brand damage is certainly real."  
—*Elias Manousos, RiskIQ*

government from monitoring their Internet use, according to George Danezis, a professor of security and privacy engineering at University College London. Once they're

more confident the network can handle greater commercial traffic, more companies will open sites there, he says. "A lot of companies want to show they were targets of the government, not the collaborators," Danezis says.

Companies mulling a move to TOR should weigh the reputational risk, says Elias Manousos, chief executive officer of software security firm RiskIQ. "The possibility for brand damage is certainly real," Manousos says.

As mainstream companies open sites on TOR, they'll help clean up its image, says Rik Ferguson, vice president for security research at software company Trend Micro. He says commercial applications will "serve to legitimize TOR in the popular consciousness, demonstrating that there are plenty of noncriminal uses for such a service."

—*Kristen Schweizer, with Cornelius Rahn*

**The bottom line** As more companies use TOR, the anonymous corner of the Internet risks being overwhelmed by increased traffic.

### Cybersecurity

## Watch Your Mobile Wallet

► Fraudulent smartphone payments are becoming a pricey problem

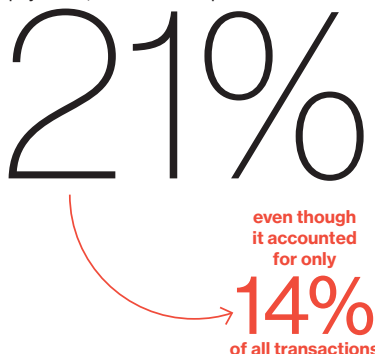
► "There are many more avenues for fraudsters to try"

After years of false starts, mobile payments are beginning to live up to the hype. They accounted for \$52 billion worth of U.S. transactions last year, up from \$32 billion in 2013, and are expected to rise to \$67 billion this year, according to analyst Forrester Research. From **Uber** to **Starbucks**, startups and old-school retailers alike see the benefits of letting customers leave their credit cards in their wallets or even at home.

Where the money goes, criminals follow. Mobile devices now make up a disproportionate share of the \$6 billion that fraud costs merchants and card issuers in the U.S. each year. While mobile payments account for 14 percent of transactions among merchants who

## Fraud Goes Mobile

Out of all fraudulent transactions logged by about 1,100 surveyed merchants who accept mobile payments, mobile made up



DATA: LEXISNEXIS RISK SOLUTIONS

accept them, they make up 21 percent of fraud cases, according to a survey of about 1,100 companies published on Jan. 26 by LexisNexis Risk Solutions. “We certainly see a surge in mobile payment attacks,” says Tomer Barel, chief risk officer at **PayPal**, who says his company deals with more cases of fraud on mobile devices than on PCs. “There are many more avenues for fraudsters to try.”

The typical case begins with the hack of a trove of credit card data from a big company (think Target or Home Depot). Hackers sell the stolen cards on a black-market website, and buyers use their phones to rack up as many purchases on each card as they can online, through apps, or in stores before someone notices. The Federal Trade Commission is also pursuing scammers who obtain people’s credit card numbers using standard phishing schemes, sending e-mails or texts with links to phony websites.

Each dollar worth of misbegotten mobile payments winds up costing a fooled merchant \$3.34. That’s slightly more than the cost of a fraudulent credit card swipe or mail order, 27 percent more than a similar payment made from a PC. Along with the cost of lost merchandise, the total includes investigation of the fraud. That’s tougher on phones than on PCs, because many businesses aren’t equipped to track mobile devices’ unique identifiers such as IP addresses. Stores often don’t catch when a card issued in Los Angeles is used for a mobile order from Mexico, says Aaron Press, director of e-commerce and payments at LexisNexis Risk Solutions. “It’s kind of a wake-up call,” he says.

Some mobile fraud remains low-tech. Last year, the Better Business Bureau

warned consumers about a scam in which people posted absurdly cheap offers for used cars online, then tricked interested buyers into wiring funds through a phony version of **Google** Wallet. Other frauds are more technical, such as the hackers who found a bug in a Chilean public transportation app that let them top off their travel credits for free. Like the brief flurry of duplicate charges that accompanied **Apple** Pay’s debut in October, such glitches highlight the vulnerability inherent in a system that requires banks, card networks, and software makers to keep pace with thieves. “If you don’t make the proper investment, they’ll be attracted to the weakest link,” says PayPal’s Barel.

Smartphone operating systems, at least, are tougher to infiltrate than those of PCs. Phones with biometric sensors can also make a person’s identity tougher to steal. Mobile payment service **LoopPay** says it’s adding support for biometric features such as Apple’s fingerprint reader, despite hackers’ claims that they can fool the iPhone’s sensor. Rival **CurrentC** says it’s considering similar measures; Apple didn’t respond to requests for comment. “There’s no perfect system,” says Will Graylin, chief executive officer of LoopPay. “It’s always a game of cat and mouse.” —*Olga Kharif*

**The bottom line** Each dollar worth of fraud committed using mobile devices costs the scammed merchant \$3.34.

## Software

### HP’s Ousted CEO Tries Out a New Act in Europe

► **Léo Apotheker is taking companies private and into the cloud**

► **“I don’t want to sound stupid or arrogant, but I don’t think I failed”**

Léo Apotheker arrives alone by taxi at Frankfurt’s Villa Kennedy hotel, hidden from the street on a cobblestone lane. Bundled against the cold, he schleps his Rollaboard into the hotel lobby toward a near-empty dining room, where he sits to discuss his new life investing in European tech companies that time passed by. Nobody recognizes him.

A few years ago, Apotheker’s world was brighter. He spent two decades rising through the sales force at German business-software company **SAP**, becoming chief executive officer in 2009. The following year he was unexpectedly fired from the struggling company, and a few months later became CEO of **Hewlett-Packard**, a job that put him in the heart of Silicon Valley. But it didn’t last: Less than a year in, after a series of lackluster quarters and sudden announcements about strategy that panicked shareholders, HP lost \$51 billion of market value, and Apotheker was out once again. He was an industry pariah.

During lunch at the Villa Kennedy, it’s clear Apotheker, now based in London, isn’t quite over his defenestration. Still, the 61-year-old German says, regret is a waste of time. “Anger is actually a positive emotion, because you can channel anger,” he says. “The one thing you need to do is not keep turning it over every day in your mind. You need to work on yourself.”

These days, instead of addressing hundreds of tech conference attendees in San Francisco or rallying 4,000 colleagues in India, Apotheker dials into weekly calls with **Unit4**, a Dutch maker of accounting software, and huddles with a sales staff of 22 at **KMD**, a Danish company that supplies software to 98 local municipalities. In the past three years he’s invested his own money alongside buyout firm **Advent International**, helped negotiate deals to take the software companies private, and received a seat on each board. The bet is that a break from shareholder pressure and a push into cloud services will make Europe’s business-software companies more competitive with the Valley. “In the U.S. you can pull teams together quickly and bring experienced management know-how, technology vision, and money to the table,” Apotheker says. “That’s a competitive disadvantage for Europe.”

Cloud-based software subscriptions can be more lucrative for their sellers in the long term than software licenses, but the shift often reduces revenue in the short run. In Europe, steadily profitable business-software makers such as **Sage Group** in Britain and **Software AG** in Germany have been slow to forsake regular tech support fees—“quite frankly a lack of ambition,” says Apotheker. The companies didn’t respond to requests for comment. ►



# Innovation

## Power Fingerprinting

### Form and function

PFP's tiny sensors can identify attempts to hack a company's electronic systems based on minute changes in energy use patterns, in some cases before the malicious code becomes active.

**Innovators** Jeffrey Reed and Carlos Aguayo Gonzalez

**Ages** 57 and 37

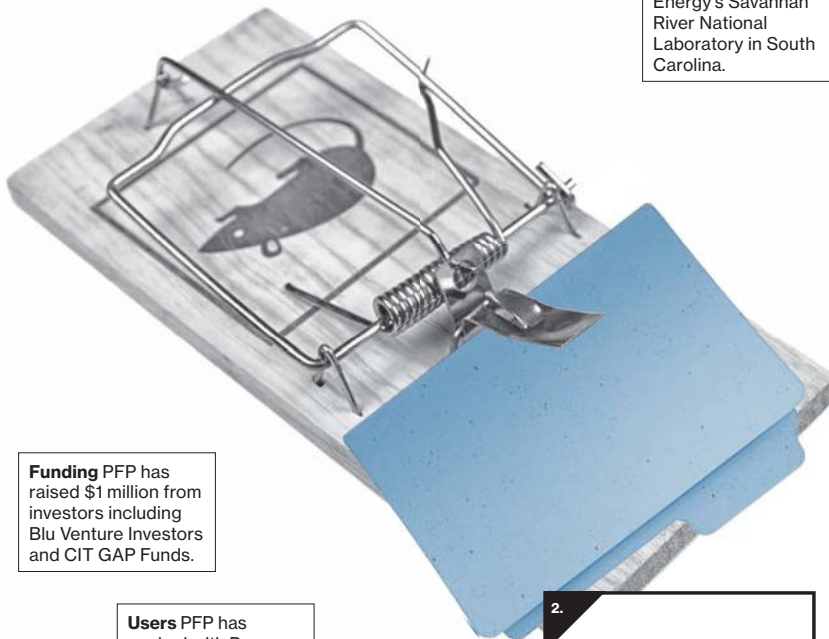
President and chief technology officer of PFP Cybersecurity, a 12-employee startup they helped co-found in Vienna, Va.

1.

**Baseline** Placed near a computer system or industrial equipment, PFP sensors analyze energy use patterns and create a so-called power fingerprint, then monitor energy use for changes.

**Origin** Reed, a Virginia Tech engineering professor, began developing the software with grad student Aguayo Gonzalez in 2006. They helped start PFP in 2010.

**Partner** PFP tested its technology in partnership with the U.S. Department of Energy's Savannah River National Laboratory in South Carolina.



**Funding** PFP has raised \$1 million from investors including Blu Venture Investors and CIT GAP Funds.

**Users** PFP has worked with Darpa, the National Science Foundation, the U.S. Army and Air Force, and the Department of Homeland Security.

2.

**Monitoring** Any failure or new code in the system shifts its fingerprint ever so slightly, and within milliseconds the PFP software sends an alert to security staff.

### Next Steps

PFP says it's adding staff with experience in hacking, signal processing, and data analysis to refine the software and embed its technology directly in chips. Joe Cordaro, an engineer at the Savannah River lab working with PFP, says the technology gives companies a new tool to catch attacks that complements other safeguards. "Cyber is about a layered defense," he says. "This gives you another layer." —Dune Lawrence

Advent, based in Boston, is spending more than any other firm to scoop up European IT companies, says researcher Prequin. KMD, whose software manages Danish retirement and unemployment benefits, was one of the firm's first targets after hooking up with Apotheker. Following its 2012 takeover, Advent made Apotheker KMD's chairman. KMD is weighing its own acquisitions as it expands into cloud software for schools and elder care, says CEO Eva Berneke, a former McKinsey consultant. She says Apotheker helped soothe local worries about Advent's intentions. "Sometimes when you work in the public sector in Denmark, private equity can be seen as these mean guys," she says. "They're actually human, most of the time."

Apotheker is also on the board at Unit4, which he and Advent took private in a \$1.6 billion deal last year. On Thursday mornings, Apotheker and CEO José Duarte, one of his former SAP lieutenants, review product announcements, potential acquisitions, and individual hires. Next month, Unit4 says, it will unveil cloud software that marks its first major release since the buyout. Duarte says the company, which had annual revenue of about €490 million (\$555 million) before it was taken private, "grew nicely in 2014," but wouldn't provide details.

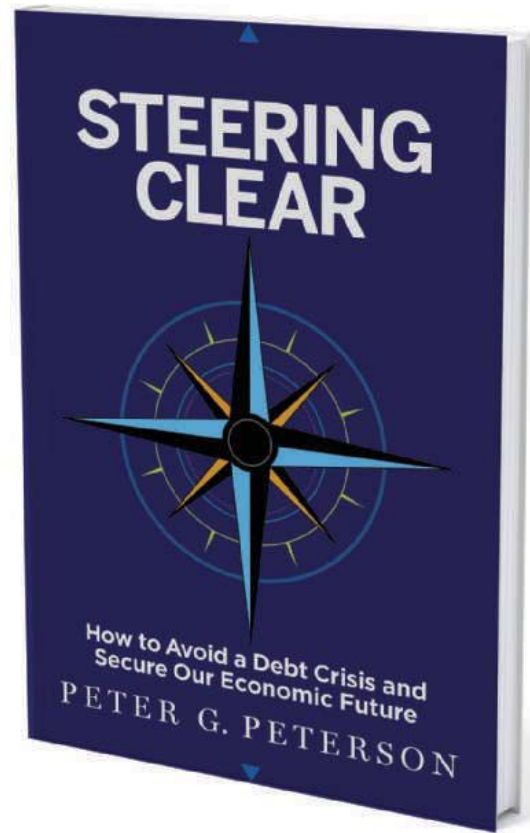
If European business-software makers can convert their strong local customer base to cloud subscriptions, "then over the next 10 years there's a lot of money to be made," says Chris Pang, an analyst at researcher Gartner. Yet it's unclear Apotheker and Advent can make that happen—it's hard to overstate the havoc he wreaked in his last big job. "His 11-month tenure at HP was pretty much the bottom of the challenges that HP's had over the last few years," says Jayson Noland, an analyst at financial-services firm Robert W. Baird. Still, HP's current CEO, Meg Whitman, has adopted some of the ideas that got Apotheker fired, including a plan to spin off the company's \$34 billion PC business. "I don't want to sound stupid or arrogant, but I don't think I failed," Apotheker says. He pauses, then allows, "I couldn't finish what I started." —Aaron Ricadela

**The bottom line** Léo Apotheker, under whom HP lost \$51 billion in market value, is advising European software companies.

**B** Edited by Jeff Muskus and Dimitra Kessenides  
Bloombergbusiness.com

# STEERING CLEAR

Charting a course  
for America's future,  
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written an important  
new book that offers  
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a hopeful call for restoring  
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February 16 — February 22, 2015

A \$634,000 crinkle painting could be yours, cheap 38

Buy a house, get a washer and dryer free! 39

Are flexible bond funds too flexible? 40

Wackiest tax loopholes, Stevie Wonder edition 42

# Even Millionaires Count Their Miles

► As American Express courts ordinary spenders, rivals poach its wealthiest clients

► AmEx “used to make me feel special. What the heck do I get from them now?”

For three decades hedge fund manager Whitney Tilson swiped his **American Express** card to buy groceries, gifts, and just about everything else. But in December, when he booked a Kenyan safari for his family, he paid for it with his new Barclaycard Arrival Plus World Elite MasterCard.

“I charge a lot of money,” says Tilson, 48, who manages more than \$83 million at Kase Capital Management. Frustrated with limits on frequent-flyer programs tied to his AmEx Platinum card, he switched a few years ago to an AmEx Costco card because he got cash back. Then, last year, Tilson’s brother-in-law tipped him off to the Barclaycard. Tilson now does about 95 percent of his spending on the new card, which gives him more cash-back rewards. “The difference between getting 1 percent and 2 percent cash back is thousands of dollars,” he says.

American Express, long the envy of the payments industry for its wealthy clientele, is fighting to retain its grip on affluent cardholders like Tilson. Rivals including **Barclays** and **JPMorgan Chase** are courting them with enhanced perks and lower fees. And as AmEx seeks to diversify by pursuing tech-savvy millennials and underbanked Americans, the risk of eroding its brand—and its biggest source of revenue—is rising.

“AmEx’s cachet with the affluent is not what it used to be,” says Jason Arnold, an analyst with RBC Capital Markets. “AmEx has always enjoyed king-of-the-hill status, but that’s changed. They’ve seen more competition in the upper end, and they recognize that they have to go elsewhere to fill that gap.”



AmEx remains the most widely held card among high-net-worth households, or those with \$1 million or more of investable assets, though its edge is narrowing, according to data from wealth research firm Phoenix Marketing International. Almost 60 percent of wealthy households had a card issued by AmEx last year, unchanged from 2012, while those holding a Chase-issued card rose to 58 percent from 52 percent, the data show. Among households making at least \$125,000 annually, Chase surpassed AmEx two years ago.

Spending growth by AmEx cardholders is beginning to slow: It increased 6 percent in the fourth quarter of 2014, to almost \$269 billion, compared with 9 percent in the preceding three-month period. AmEx shares fell 8.6 percent

this year through Feb. 9, the third-worst performance in the 30-company Dow Jones industrial average. The stock climbed in each of the previous six years.

Since the financial crisis, banks have made relatively less money from loans and trading and more from fee-generating businesses such as credit cards. With less-affluent consumers cutting spending during the recession and the CARD Act of 2009 restricting fees at the lower end of the market, card issuers have targeted big spenders—people with top credit scores who pay their bills on time. Banks are wooing them with lavish perks such as exclusive dinner reservations, wine tastings, and tennis lessons. Lenders including Barclays and **Citigroup** have struck partnerships with airlines and hotels, offering customers discounts on plane tickets and lodging, as well as cash rewards. Tilson says he prefers his Barclaycard because it gives him as much as 2.2 percent cash back on travel purchases and no fees on foreign transactions, unlike his Costco AmEx.

AmEx has recently had to adjust some long-standing perks. Its cardholders lost free access to American Airlines and US Airways lounges last year, as the carriers began to prioritize users of their own cards and rewards programs. AmEx has since built its own airport lounges in New York, San Francisco, and Las Vegas.

“American Express used to make me feel special,” says Darius Gilvydis, a radiologist from outside Chicago who switched last year from AmEx to the Ritz-Carlton Rewards Visa card, issued by JPMorgan. “What the heck do I get from them now? It’s just not worth the ►

◀ money,” he says, referring to the \$450 annual fee for the AmEx Platinum card, which is \$55 more than the Ritz-Carlton card. The average annual fee on U.S. card offers increased to \$140 last year, from \$101 in 2012 and \$69 in 2007, as banks added more benefits, according to marketing-research firm Mintel Group.

In the battle for affluent clients, AmEx products are “unmatched,” says Josh Silverman, its president of U.S. consumer services. The number of Platinum-card holders increased 8 percent last year from 2013, he says. “For all the talk from our competitors about the inroads they are making, we have not seen that reflected in our numbers, not in customer retention or the ability to acquire new card members,” Silverman says.

As banks chase the rich, competition for co-branded cards is also intensifying. Costco dropped AmEx as its card issuer in Canada last year. The chain is considering making a similar move with its larger U.S. portfolio, and JetBlue Airways is also in talks to replace AmEx, people briefed on both deals said separately last fall, requesting anonymity because the negotiations are private.

Meanwhile, AmEx Chief Executive Officer Kenneth Chenault has introduced new products aimed at younger and less-affluent customers to broaden AmEx’s appeal. The lender has worked with **Uber**, **Apple**, and other companies to expand mobile payments and courted Americans who lack access to traditional banks with products such as its Bluebird prepaid card, offered at **Wal-Mart Stores**. Such efforts risk diluting AmEx’s brand, says William Ryan, an analyst with research firm Portales Partners. “American Express has always charged

merchants a higher rate because of their affluent base,” he says. “What happens when they look like everybody else?”

AmEx executives have said repeatedly that becoming more inclusive hasn’t hurt their label. Still, Chief Financial Officer Jeffrey Campbell has said that efforts to broaden the lender’s appeal are putting pressure on revenue. “We could probably get the revenue growth up in the near term higher than it is today if we abandon some of the things we’re doing that we think are quite important for the longer term,” he told analysts in October.

Ron Shevlin, an analyst at payments research firm Aite Group, says the company faces battles on many fronts: “The days when AmEx could solely rely on higher-end customers are long gone.”

—Elizabeth Dexheimer

**The bottom line** American Express shares have declined 8.6 percent this year as rivals vie for the company’s affluent cardholders.

## Art

### A Beauty on the Wall, a Disaster in the Portfolio

▶ Falling prices for a once-hot artist show the dangers of investing in art

▶ “Sooner or later, the art world comes to its senses”

As elite guests walked into a new exhibition at the Bass Museum of Art in Miami Beach in December, they were greeted by a cluster of three abstract black-and-white paintings. Created by German artist Anselm Reyle, the

monochrome works were nothing less than a middle finger to the art world. The show was assembled by Peter Marino, an architect known as much for his outré leather biker outfits as his luxe retail interiors for Chanel and other companies. Including the Reyle paintings in his show was a trademark act of defiance—an unsavory reminder to art speculators that their whims often transform art into a terrible investment they’d prefer to forget. “People don’t like artists whose price goes down,” says gallery owner and collector Adam Lindemann, who owns a work by Reyle. “The art market died in 2009 for about a year, and there were some casualties. Reyle was a noteworthy one, and so the art market selected him as a pariah.”

In the contemporary art world, where it’s common for recently discovered artists to sell works for hundreds of thousands of dollars, there’s a perception the market is unstoppable. The precipitous fall of Reyle is a reminder that important backers, high prices, and insider buzz have their limits, and even beautiful art can be a fundamentally fickle asset.

Just eight years ago, the market for Reyle’s work looked invincible. Born in 1970, he became known for his signature “crinkle” pieces, in which colored foil is mounted on a painted canvas and then encased in glass. His first solo show in the U.S. was in 2004 at Gavin Brown’s Enterprise, a Manhattan gallery known for introducing young artists to U.S. buyers. In 2007 he switched to the mega Gagosian Gallery, having gained such champions as billionaire François Pinault and tastemaker Charles Saatchi. “He was the artist everybody needed to have,” says Thea Westreich, an adviser to powerful collectors.

In 2006 just one of Reyle’s works appeared at auction, selling for \$58,000, about 10 percent below its high estimate. A year later, 17 of them came to the gavel. One, a 4-foot, 7-inch purple crinkle work, had a pre-auction high estimate of \$35,000—then sold in front of a stunned audience for \$192,000.

Subsequent sales that year were even frothier: \$489,000 for an oil, PVC foil, and Perspex work on canvas that had been estimated to sell for as much as \$143,000; \$634,000 for another piece that had a high estimate of \$51,000. In one year, Reyle’s record at auction had increased by more than 1,000 percent.

Then the global financial crisis

## Rich Rewards

Credit cards that cater to affluent consumers and a sample of their perks

### American Express Platinum Card



**\$450**

\$200 airline rebate  
Access to Centurion, Delta Sky Club, and Airspace airport lounges  
No foreign-transaction fees  
24/7 travel agent  
Concierge service  
Discounts at some hotels

### Ritz-Carlton Rewards JPMorgan Chase Visa



**\$395**

\$300 travel credit  
Complimentary Ritz-Carlton stay  
No foreign-transaction fees  
Hotel room upgrades  
Airport lounge access  
Concierge service

### United MileagePlus Club Card



**\$395**

\$100 statement credit  
1.5 miles for every \$1 spent; 2 miles for every \$1 spent on United  
No foreign-transaction fees  
Airport lounge access  
Priority check-in and boarding

### Barclaycard Arrival Plus World Elite MasterCard



**\$89**

\$400 statement credit  
No foreign-transaction fees  
Effective 2.2 percent cash back on travel purchases; 2 percent on everything else

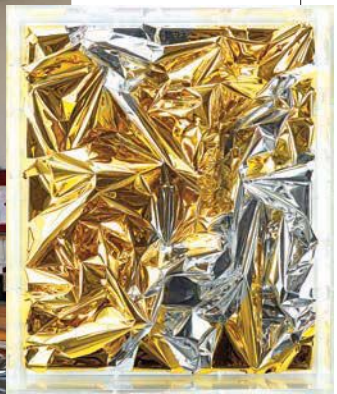
Annual fee



*Taymir IV (for Victor Vasarely)*, 2003  
**Estimate of \$15,000 to \$23,000**, at Phillips London's February 2015 auction



**Verdammt noch mal!**



*Untitled*, 2013  
**Sold for \$52,500** at Phillips New York in September 2014

*White Earth*, 2008  
**Estimate of \$15,000 to \$20,000**, at Phillips New York's March 2015 auction



Reyle, in his studio, says his monthly operating cost was as high as

struck, causing even the richest collectors to pull back. Reyle's

sales are between private parties, after the primary sale of a work by its creator.) *Divided Sight #2*, a watercolor on paper, sold for \$10,200. A year later, Furnas's *Heartbreak Ridge* went for \$520,000. By 2014 the boom was over: Of 13 Furnas paintings that went to auction, only three sold.

The artist Tom Friedman, born in 1965, has had a similar trajectory. From 1998 to 2004, all but one of his works at auction sold within or above its estimate. His biggest sale came in 2006—\$856,000 for a grotesque corpse made of construction paper in a pool of red—and his work was exhibited widely, from the Palais de Tokyo in Paris to the Palazzo Grassi in Venice. But neither critical nor institutional support was enough to sustain Friedman through the tumult of 2008. Last year, among 10 works by Friedman at auction, four failed to find a bidder.

Artists themselves usually have little to do with the price swings. And while they reap little benefit from their soaring secondary markets—collecting nothing when their work sells at auction—they can be hurt when those sales crumble. As their stars fade and collectors, even the nonspeculative ones, drift toward more fashionable subjects, it can be devastating. In February 2014, Reyle announced his retirement. His studio costs, which during the boom he estimated to be as much as \$900,000 a month, were too high to justify continuing, he told the German magazine *Die Welt*. "The whole situation was surreal," he said. "Not necessarily pleasantly surreal,

either." Reyle didn't respond to a request for comment.

Since the financial crisis, "there's even more speculative buying and more gamblers than ever," Lindemann says. "But they're not going to want to buy the artists that busted. They're going to want to buy the deals today. They want to move on."

Marino still owns 14 Reyles, which he calls beautiful. "The art market is, unfortunately, closely allied with the fashion market," he says. "Just like handbags are in style, and then two years later they're not, an artist's in, then he's out. But I don't follow that. Now that I'm 65, I go, 'Who cares?'" —James Tarmy

**The bottom line** A work by the once-hot artist Anselm Reyle sold last year for about \$66,000, \$30,000 less than it fetched four years ago.

## Real Estate

### Home Buyers Gain The Upper Hand

- ▶ To drive sales, builders offer discounts and free appliances
- ▶ "We topped out on the number of people who need \$400,000 homes"

At the Trails, a new residential development in Eastvale, Calif., the fences are festooned with red, yellow, and blue balloons, and banners advertise a "Big Deal Event." Dwayne Saunders and his fiancée, Rotundra ▶

◀ Greene, are unpacking boxes in their garage. In December, the couple purchased a four-bedroom house in the 369-lot community, about 45 miles east of Los Angeles, after the builder, **D.R. Horton**, knocked the price down 4.5 percent, threw in a washer and dryer, and covered their closing costs. They paid \$450,000. Last month, the

**"They're competing with themselves ... you'll have a national builder that has three or four communities within 10 miles of each other."**  
—Broker  
**Maryanne Moyers**

house next door sold for \$404,000. "It was bigger, too," says Saunders, who's happy to see the neighborhood filling up. "Builders are giving out great incentives. At the end of the day, they sold all but one house on my block."

As the key spring home-selling season approaches, D.R. Horton and other builders are under pressure to increase earnings by speeding up sales, even if it means offering freebies to draw customers. For buyers, that's a relief after a 46 percent jump in new-home prices in four years. In recent earnings reports, top executives at **KB Home** and **Lennar** warned that their shrinking pricing power will dent profitability, while **M.D.C. Holdings** Chief Executive Officer Larry Mizel said "increased incentives" were eating into its gross margin.

Sales of new houses in December reached their fastest pace since 2008, according to U.S. Department of Commerce data. To maintain that momentum, homebuilders will need to make prices attractive, because buyers have more to choose from. The National Association of Home Builders is forecasting that groundbreaking for single-family homes will increase

26 percent this year, to 804,000 units, spurred by job growth, rising consumer confidence, and low mortgage rates.

Maryanne Moyers, an associate broker for Long & Foster Real Estate in Stafford County, Va., says she recently persuaded one of the big builders to drop the price on a 5,500-square-foot house to \$610,000 from \$661,000. It also threw in a bedroom and media room in the basement. "Not only are the builders competing with each other, they're competing with themselves, because you'll have a national builder that has three or four communities within 10 miles of each other," Moyers says.

Builders also are competing with sellers of existing homes, which are cheaper and closer to cities and jobs than the new suburban developments. In December the national median price for a new home was \$298,100, up from an October 2010 low of \$204,200, according to Commerce Department data. That's double the 23 percent increase for existing homes, which had a median price of \$209,500, according to the National Association of Realtors.

In Houston and Dallas, builders concerned that falling oil prices would dent demand boosted incentives in December, says Lawrence Dean, a senior adviser at market researcher Metrostudy. "It's possible they're going to leave money on the table as they try to push sales volume unnecessarily," he says.

A mismatch between supply and demand may also be putting a lid on prices in some locations, including Phoenix. Most of the big builders—with the exception of Horton, whose line of Express Homes starts at less than \$100,000—have shifted away from entry-level homes, because those customers had difficulty getting loans. Now that's where the shortage is most acute—and the growth potential is greatest. "We topped out on the number of people who need \$400,000 homes," says Alex Barron, an analyst with the Housing Research Center in El Paso. "If you're in the market for a lower-priced home, they aren't available. Or you can't afford it."

David Goldberg, an analyst with UBS Securities, says builders are becoming more adept at responding to shifts in consumer sentiment, credit availability, and production pace.

"The builders package deals not so you'll get the best deal, but so that you'll feel really

good," he says. "For all we know, they marked the base pricing of the house up enough so the net pricing wasn't changing. Part of it's just psychological, and the builders are great at that."  
—*John Gittelsohn and Prashant Gopal*

**The bottom line** Homebuilders are sacrificing their profit margins as they offer buyers discounts and other incentives.

### Investing

## Unconstrained Funds, Constrained Returns

▶ Flexible bond funds lagged their more traditional peers last year

▶ "These funds promise all sorts of wonderful things"

In the aftermath of the 2008 crisis, financial services companies came up with a new class of mutual funds to protect investors in what was expected to be a period of rising interest rates. Unconstrained funds were designed to profit in rising and falling markets by giving their managers flexibility to invest in a much broader range of assets.

These so-called untraditional funds have attracted \$78 billion over the past two years, doubling their assets to \$151 billion. They were the best sellers in

the fixed-income category in 2014. Yet on average, unconstrained funds returned only 1.2 percent last year, vs. 5.2 percent for intermediate-term funds, a fixture in retirement accounts and historically the most popular bond

**1.2%**

**Average return for unconstrained funds in 2014, vs. 5.2 percent for intermediate-term funds**

investment. The new funds' returns also trailed for the past three- and five-year periods, and they're behind again in 2015, according to Morningstar. "These funds promise all sorts of wonderful things," says Ford O'Neil, manager of the \$18.8 billion **Fidelity Total Bond Fund**, which doesn't offer unconstrained funds. "The question is: Can they deliver?" They haven't proven their value, he says.

While traditional bond funds favor government and corporate debt, managers of the newer funds are allowed ▶

**Free!**



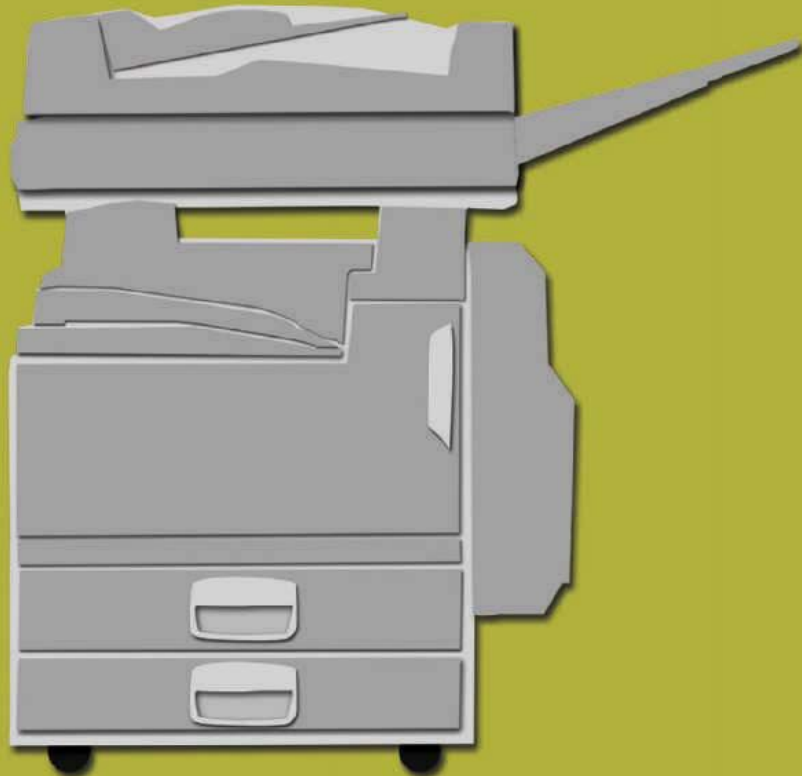
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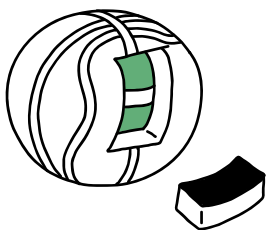


# Taxes

By Ben Steverman

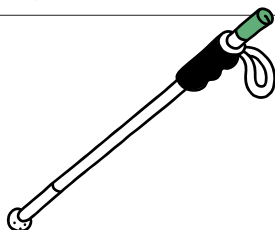
## Weirdest Loopholes

Tucked away in the U.S. tax code's 4 million words are countless contradictions and write-offs. We asked accountants, tax lawyers, and professors to identify some of the strangest sections.



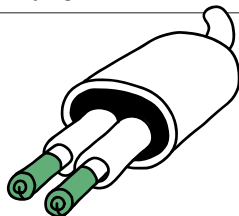
### Courtside deduction

Many alumni can't get tickets to their alma mater's home games unless they make a special "donation" to the university. Under current law, 80 percent of such contributions are deductible. The Obama administration has proposed closing the loophole to raise an estimated \$2.5 billion over the next decade.



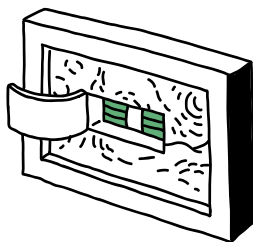
### Fiscal favoritism

The blind are eligible for a higher standard deduction; the deaf or otherwise disabled don't get special treatment. A songwriter who sells his music catalog pays a capital gains tax on the earnings. But painters, photographers, writers, and other artists selling a body of work are subject to income taxes, which can be significantly higher.



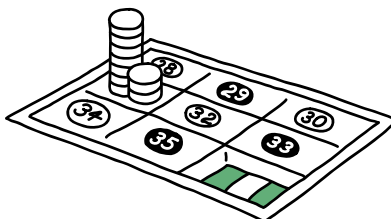
### Mixed (car) signals

Buyers of energy-efficient hybrid and electric cars are eligible for a federal tax credit of as much as \$7,500. Yet the tax code also encourages businesses to buy gas-guzzling SUVs, vans, and pickup trucks by making it easier to depreciate the cost of a vehicle that weighs more than 6,000 pounds.



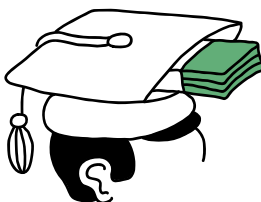
### Artful write-off

Buyers of old master paintings or vintage Ferraris can enjoy their collections while getting a tax break: First they set up a nonprofit museum that they control, then donate their collection to it. The museum might need to open to the public only a few days a month.



### A GRAT dodge

The grantor retained annuity trust allows individuals to place assets into a trust in exchange for an annuity payment. Any growth in the assets above the payment goes to their heirs tax-free. Casino owner Sheldon Adelson used GRATs to transfer at least \$7.9 billion to his heirs from 2010 to 2013, avoiding a \$2.8 billion bill.



### The value of an education

If you withdraw money from a 529 savings plan without using it for education, you'll pay a 10 percent penalty. But that one-time levy is small compared with the cumulative drain of years of taxes on capital gains and dividends an ordinary investment sees, making the plans an attractive vehicle for anyone.

◀ to bet on the direction of interest rates and can buy a range of assets including currencies, bank loans, and emerging-market debt. Last year the performance of many of the flexible funds was crimped by managers' decision to hold bonds of short duration. Securities with shorter duration are less sensitive to changes in interest rates, while those that are longer lose value when interest rates go up. As of Nov. 30, flexible funds had an average effective duration of less than 12 months, compared with 4.8 years for intermediate funds. When rates fell in 2014 because of low inflation and economic weakness in Europe and Asia, the intermediate funds benefited more. Unconstrained funds also suffered when high-yield bonds and bank loans tumbled late in the year.

Managers defend keeping their duration short, arguing that the funds are supposed to be an alternative to conventional bond investments. Most of the risk in a typical bond fund comes from swings in interest rates, says Laird Landmann, part of the team managing the \$1.8 billion **Metropolitan West Unconstrained Bond Fund** at Los Angeles-based **TCW Group**. "We want this fund to have a low correlation to 10-year Treasuries," William Eigen, whose team runs the \$22.3 billion **JPMorgan Strategic Income Opportunities Fund**, says it's unfair to compare the returns of his flexible fund with those of a typical bond fund, because his goal, much like that of a hedge fund, is to make money in all kinds of markets. Eigen's fund has had two down years in the past four, losing 0.1 percent in 2014 and 0.3 percent in 2011, according to data compiled by Bloomberg.

So far in 2015, nontraditional funds are trailing intermediate funds as rates continue to fall. Intermediate funds had returned an average of 1 percent as of Feb. 9, while flexible funds had gained only 0.5 percent, according to Morningstar. Sarah Bush, a senior Morningstar analyst, says it may be too early to make a judgment about flexible funds. "They haven't been around that long," she says. "We are going to have to see how they perform through a whole cycle." —Charles Stein

**The bottom line** Mutual funds designed to profit in up and down markets were a top seller in 2014 but delivered disappointing results.

**B** Edited by Cristina Lindblad and Nick Summers  
Bloombergbusiness.com



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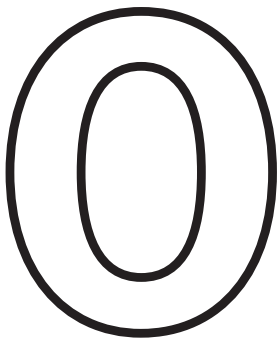
Is Novartis  
developing  
the first  
legitimate  
anti-aging  
drug?

for

Photograph by  
David Brandon  
Geeting  
Gifford  
By Bill

Wanna!





ne afternoon in the early 1980s, Suren Sehgal brought a strange package home from work and stashed it in his family's freezer. Wedged beside the ice cream, it was wrapped in heavy plastic and marked, "DON'T EAT!" Inside were several small glass vials containing a white paste—all that remained of a rare bacterium that today is the foundation of the most promising anti-aging drug in decades. Sehgal had been studying it since 1972, when he'd first isolated it in a soil sample at Ayerst Laboratories, a pharmaceutical company in Montreal.

A Canadian medical expedition had collected the soil from beneath one of the mysterious stone heads on Easter Island, a speck in the middle of the Pacific Ocean. In the dirt, Sehgal had discovered *Streptomyces hygroscopicus*, a bacterium that secreted a potent antifungal compound. This intrigued him; he thought perhaps it could be made into a cream for athlete's foot or other fungal conditions. He purified the stuff and named it rapamycin, after Easter Island's native name, Rapa Nui.

It soon proved its potential. When a neighbor's wife developed a stubborn fungal skin condition, Sehgal mixed up a rapamycin ointment for her. "It was probably illegal," says his son Ajai Sehgal, but the infection cleared up quickly. Suren, a biochemist who'd immigrated to Canada from a tiny village in what's now Pakistan, became convinced that he'd stumbled upon something special. Before he could develop it any further, however, Ayerst abruptly closed its Montreal lab, and his bosses ordered all "nonviable" compounds destroyed—including the rapamycin. Sehgal couldn't bring himself to do it and instead squirreled a few vials of *Streptomyces hygroscopicus* into his freezer at home. Most of the staff was fired, but Sehgal was transferred to the company's lab in Princeton, N.J. The plastic package made the move packed in dry ice.

When Wyeth, the global health-care company based in Pennsylvania, bought Ayerst in 1987, Sehgal persuaded his bosses to let him resume his work on the rare bacterium. Sehgal found that, besides its antifungal properties, rapamycin also suppressed the immune system. It tamps down the body's natural reaction to a new kidney or other organ. Eventually, in 1999, the U.S. Food and Drug Administration approved rapamycin as a drug for transplant patients. Sehgal died a few years after the FDA approval, too soon to see his brainchild save the lives of thousands of transplant patients and go on to make Wyeth hundreds of millions of dollars.

In the years since, rapamycin has been adapted for numerous uses. Like penicillin, it's a biological agent, so it can't be patented, although derivatives of it can. It's now used routinely as a coating on cardiac stents to prevent scarring and blocking. Derivatives of rapamycin have been approved for use against certain kidney, lung, and breast cancers. That may be just the beginning. Over the past decade,

it's shown promise as a drug that not only can extend life by delaying the onset of aging-related diseases such as cancer, heart disease, and Alzheimer's disease, but also postpone the effects of normal aging. With an eye toward changing the way millions grow older, Novartis, the \$260 billion Swiss pharmaceutical giant, has begun taking the first steps to position a version of rapamycin as the first true anti-aging drug.

Pharmacological history is full of substances that have been purported to delay aging or lengthen life span, from resveratrol (the "red wine pill") in the 2000s to testicular implants in the 1920s, all the way back to medieval alchemists (gold was thought to possess anti-aging properties). Until rapamycin came along, however, nothing has actually worked in rigorously designed clinical studies.

"People have shown that rapamycin extends life span again and again and again," says Matt Kaeberlein, a scientist at the University of Washington and a leading researcher in the biology of aging. So far it's demonstrated it can lengthen the lives of mice, not men, but what's particularly exciting is how it did so, Kaeberlein says. The drug appears to delay "age-related decline in multiple different organ systems, which is something we would expect if we were fundamentally slowing the aging process."

The promise of rapamycin, he and others contend, is to treat aging as a contributing factor to the chronic diseases that kill people later in life, the way we now lower cholesterol to prevent heart disease. "I view it as the ultimate preventive medicine," says Kaeberlein, who's leading a rapamycin study on dogs.

Not everyone is convinced. "There are no interventions that have been documented to slow, stop, or reverse aging in humans," says S. Jay Olshansky, a professor of public health at the University of Illinois at Chicago and a leading critic of purported life-extending supplements and treatments. "The batting average is zero."

Olshansky welcomes the advent of therapies like rapamycin, but he doesn't think we know enough yet: "My caution is always no, no, no: Let science do what it does and evaluate these interventions for safety and efficacy first," he says. Such admonitions are justified. And yet the enthusiasm of scientists such as Kaeberlein is hard to resist. "We have the potential to delay the onset of all of these diseases at the same time by understanding and intervening in the molecular processes that drive aging," he says. "We now know that that is possible."

Rapamycin works at a fundamental level of cell biology. In the early 1990s, scientists at Novartis's predecessor, Sandoz, discovered that a rapamycin molecule inhibits a key cellular pathway regulating growth and metabolism. This pathway was eventually dubbed "target of rapamycin," or TOR, and it's found in everything from yeast to humans (it's known as mTOR in mammals).

MTOR is like the circuit breaker in a factory: When it's activated, the cell grows and divides, consuming nutrients and producing proteins. When mTOR is turned down, the "factory" switches into more of a conservation mode, as the cell cleans house and recycles old proteins via a process called autophagy. One reason



**Sehgal**  
Discovered the source  
of rapamycin



**Blagosklonny**  
Says the drug has fewer  
side effects than aspirin



**Reinhardt**  
Has committed Novartis  
to aging research



hunt. And it just so happens that stress resistance is good for aging.”

One of the most passionate advocates for rapamycin as an anti-aging drug is a Russian scientist named Mikhail Blagosklonny, who now works at the Roswell Park Cancer Institute in Buffalo. A native of St. Petersburg, he was working on cancer treatments in the early 2000s when he realized the same qualities that made rapamycin effective at slowing tumor growth might also help it slow the aging process. He became so convinced of rapamycin’s potential, and its safety, that he tried it himself. “Some people ask me, is it dangerous to take rapamycin?” Blagosklonny says. “It’s more dangerous to *not* take rapamycin than to overeat, smoke, and drive without belt, taken together.”

Many colleagues have regarded his advocacy as a bit over-the-top. When Blagosklonny submitted papers to major journals making these arguments, they were brutally rejected. “Sometimes, the reviewers would call me names,” he says. That started to change in 2009, when a large National Institutes of Health-funded study established that rapamycin and its derivatives helped mice live longer. The NIH scientists started mice on the drug at 20 months, or late middle age in mouse terms (mice typically live two to three years). Male mice on rapamycin lived 9 percent longer. The females’ life span was extended by 14 percent. This is roughly the equivalent of giving 60-year-old women a pill

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caloric restriction extends life span in animals, researchers believe, is because it slows down this mTOR pathway and cranks up autophagy. Rapamycin does the same thing, only without the gnawing hunger.

“Really what rapamycin is doing is tapping into the body’s systems for dealing with reduced nutrition,” says Brian Kennedy, chief executive officer of the Buck Institute for Research on Aging in Novato, Calif. “We’ve evolved over billions of years to be really good at that. When things are good, we’re going to grow and make babies. And when things are not so good, we go into a more stress-resistant mode, so we survive until the next

that would enable them to see their 95th birthday.

There’s one catch: Rapamycin suppresses the immune system (that’s why it’s effective with transplants). That fact, many scientists and physicians believe, is its Achilles’ heel as a drug to treat aging. Giving such a drug to older patients, whose immune systems are often already diminished, would make them vulnerable to life-threatening infections, defeating the purpose.

For believers like Blagosklonny, a breakthrough came on Christmas Eve 2014. That’s when a paper appeared in *Science Translational Medicine*, part of the *Science* family of journals. According to the study, conducted with volunteers



**“People have shown  
that rapamycin extends life span  
again and again and again....  
I view it as the ultimate  
preventive medicine”**

in Australia and New Zealand, a derivative of rapamycin called everolimus had been shown to improve the immune response of elderly patients when administered in limited doses. It wasn't the sort of thing that makes CNN, but in the world of scientists who work on human aging, it was big. "A watershed," says Nir Barzilai, director of aging research at New York's Albert Einstein College of Medicine.

For the first time, the study showed, rapamycin appeared to enhance aspects of the immune response, boosting the efficacy of a flu vaccination in the study population, who were all 65 or older. "It seems to modulate the immune response, not suppress it," says Barzilai. "It's very exciting."

The study was noteworthy also because Novartis paid for it. For the most part, Big Pharma has shied away from aging, which conventional wisdom had deemed to be a quackery-ridden money pit. In 2008, GlaxoSmithKline paid \$720 million to buy Sirtris Pharmaceuticals, a biotech startup founded by Harvard professor David Sinclair that was developing drugs based on resveratrol, the antifungal compound found in the skins of red-wine grapes. Resveratrol received a tremendous amount of coverage in the media, including *60 Minutes*, the

be too risky for people who are otherwise fine. Besides the possibility of immune suppression, rapamycin's side effects can include canker sores and impaired wound healing. "Rapamycin works on pathways that are too fundamental to normal cellular function to be used as a drug in healthy people until we have much more safety data," says Valter Longo, a professor at the University of Southern California who discovered key pathways related to TOR. He points out that periodic fasting also shuts down the same pathways, without the side effects.

The Novartis researchers tried to get around the immune-suppression side effect by giving the drug in very low doses and for a defined period. They found its benefits persisted long after the drug was discontinued. But the Novartis study is far from definitive on the issue, says Janko Nikolich-Zugich, chair of the department of immunobiology at the University of Arizona and co-director of the Arizona Center on Aging.

The study measured response to a vaccine, not to an infectious agent. Nikolich-Zugich fears that rapamycin would stop immune cells from multiplying quickly enough to fight off an army of invading pathogens. "I don't think this in any way, shape, or form settles concerns about what mTOR

inhibitors would do in cases of infection," he says.

An innovative clinical trial set to begin in March may resolve some of these issues. Kaeberlein and his University of Washington colleague Daniel Promislow plan to test the drug in small doses in middle-aged pet dogs. Rather than looking at life span, which would take years, they will look for signs that the drug is affecting key aging-related parameters, such as arterial stiffness and cardiac function. If successful, rapamycin and its derivatives could end up as the first anti-aging drug—for dogs. Kaeberlein wouldn't

mind: "I love my dogs," he says. "If there's anything we can do to make them live longer, healthier lives, we have to do it. I feel like I personally have to do this."

In September, Novartis Chairman Joerg Reinhardt announced the company's new commitment to aging research. "Over the long term, one could argue that R&D productivity has relentlessly declined," he said in a keynote at a drug development conference in Basel, Switzerland. Aging represents a fertile field of discovery: Identifying the pathways and proteins associated with aging could yield promising drug targets, he said. By tweaking the right pathways, researchers could theoretically prevent a host of age-related diseases. Novartis is not alone in this: Last fall, Chicago-based AbbVie announced a \$500 million partnership with Calico, an aging-research venture founded by Google.

Rapamycin isn't the only widely used medication that's turning out to have possible anti-aging properties. Millions of diabetics take a drug called metformin, which has been around for decades. Like rapamycin, metformin extended the life of federally funded mice in a clinical trial. And there is evidence that it might do the same for people. Diabetes typically shaves about five years off a person's life. But a large retrospective analysis found that diabetics on metformin had a 15 percent lower mortality rate than nondiabetic patients in the same doctors' offices. "To me that suggests that it's actually targeting aging," says Kennedy.



The bacterium *Streptomyces hygroscopicus* is found only on Easter Island

*New York Times*, and Barbara Walters. It was said to be responsible for the "French paradox": Although the French eat fatty foods, they remain healthy. A highly publicized *Nature* paper had shown that mice on a high-fat diet had lived longer with resveratrol. After the study appeared, sales of resveratrol supplements rocketed from basically zero to about \$100 million a year. But the drugs all flopped in human trials, and in 2013 GSK shuttered its Sirtris division and fired all but a handful of staffers.

"The difference between rapamycin and resveratrol is that rapamycin really works as advertised and resveratrol doesn't," says the University of Washington's Kaeberlein. "If you look at the data, you have to agree." Kaeberlein, who went to graduate school with Sinclair at MIT, was an early critic of resveratrol, which he points out has actually never extended life span or otherwise slowed aging in normal mice—it appeared to work only in fat mice.

Rapamycin has been found to reduce age-related bone loss, reverse cardiac aging, and reduce chronic inflammation in mice. It's even been shown to reverse Alzheimer's disease in them. The Novartis study was the first to examine rapamycin's effect on aging-related parameters in healthy older people. "It's a landmark study," says the Buck Institute's Kennedy. "It's the kind of study we need more of."

That doesn't mean everyone should be asking their doctors for a prescription to an mTOR inhibitor. Critics say it may

“I remain skeptical that there will be one

magic bullet,”

says Novartis’s Fishman. But the 2014 study “is a good proof-of-concept”

The problem they’ll all face, though, is the same one that tripped up GSK: The FDA is unlikely to approve any drug intended to “treat” aging, because aging is not considered a disease. Another obstacle is the high safety standards required of any drug that would, in effect, be used to treat healthy people. “It would have to have fewer side effects than aspirin,” says Randy Strong, a pharmacologist at the University of Texas Health Science Center at San Antonio who worked on the 2009 NIH study.

This may explain why Novartis is taking an incremental approach with therapies aimed at specific conditions, says Dr. Mark Fishman, head of the Novartis Institutes for BioMedical Research in Cambridge, Mass., and a member of the company’s board of directors. “We’re therapeutically oriented, rather than looking for the pill that will make everybody live to 120,” he says.

The company’s age-related drug pipeline includes a novel drug aimed at treating heart failure, which the European Union recently fast-tracked for approval. Another, bimagrumab, is meant to reverse muscle loss. Designated a “breakthrough” by the FDA, it’s soon set to enter Phase III clinical trials for a rare condition called sporadic inclusion body myositis, but it could have wider application for muscle wasting and frailty in older people. “This whole frailty business is right up there with Alzheimer’s as a cause of incapacitation and sadness for the elderly,” Fishman says.

Also in the works are a drug that could potentially restore cartilage in aging joints and, most interestingly, a radical gene therapy meant to reverse the loss of “hair cells” in the ear canal that are crucial for good hearing, but which are knocked out by things like antibiotics, chemotherapy, and “too much Lady Gaga,” Fishman says.

He’s cautious about the anti-aging potential of rapamycin, which the company sells under the Afinitor brand name for cancer treatments and as Zortress for transplants, with 2012 sales of just more than \$1 billion. (Pfizer, which purchased Wyeth in 2009, also sells a version under the brand name Rapamune.) “I remain skeptical that there will be one magic bullet,” Fishman says, “but [the 2014 study] is a good proof-of-concept, and it’s provocative enough that we’ll at least think of how and whether we should proceed.”

Blagosklonny isn’t so measured or patient. In his view, rapamycin has been approved for use for more than 15 years, with no serious problems reported. “I have read all papers about side effects,” he says, “and there are less side effects than with aspirin.” When he took it, he says, it made him feel better, “like with exercising.”

Novartis strongly discourages such off-label use. In an e-mail, spokeswoman Mariellen Gallagher wrote: “It is far too early to tell whether low-dose rapamycin will lengthen human life span. A favorable risk/benefit ratio needs to be demonstrated in clinic trials to be sure that mTOR inhibitors such as rapamycin have acceptable safety and efficacy in aging-related conditions in humans.”

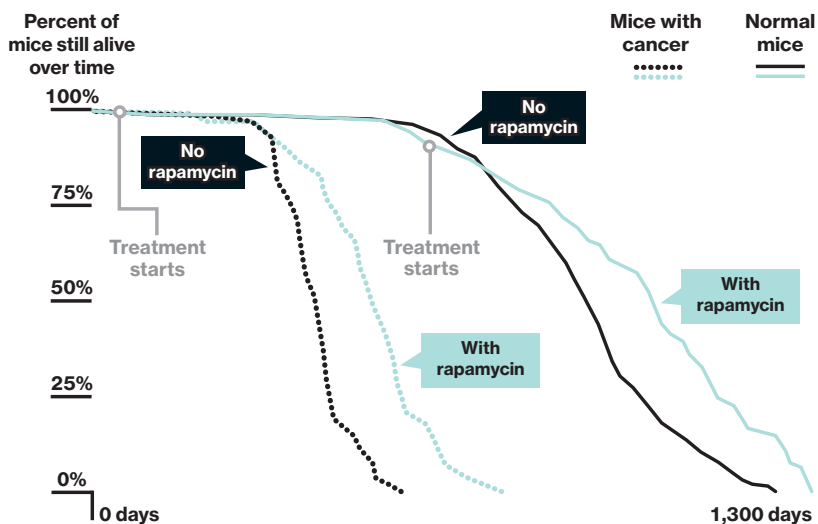
In any case, one imagines Sehgal would be proud. After he was diagnosed with cancer in 1998, his son Ajai says, Sehgal began taking rapamycin, too—despite the drug not having been approved for anything yet. He had a hunch that it might help slow the spread of his cancer, which had metastasized to his liver and other organs. His doctors gave him two years to live, but he survived for much longer, as the tumors appeared to go dormant. The only side effect he suffered from was canker sores, a relatively small price to pay.

But in 2003, after five years, Sehgal, age 70, decided to stop taking the drug. Otherwise, he told his wife, he’d never know whether it was really holding back his cancer. The tumors came back quickly, and he died within months, says Ajai. “On his deathbed, he said to me, ‘The stupidest thing I’ve ever done is stop taking the drug.’” **B**

Gifford is the author of *Spring Chicken*, a book about the science of aging, published in February.

## The Mice That Roared

Rapamycin has been shown to extend the lives of both healthy and cancer-stricken mice



**LOOKING FOR ANSWERS**





## THE NEW SCIENCE OF FINDING OUT ANYTHING FROM ANYONE

BY DRAKE BENNETT  
PHOTOGRAPHS BY STEVEN BRAHMS

In August 2003, six months after the U.S. invasion of Iraq and four months into the bloody insurgency that followed, Steve Kleinman, an Air Force lieutenant colonel, arrived in the country as part of a special operations task force based out of Baghdad International Airport. A lean man with an angular face and a faintly Californian cadence, Kleinman had been an intelligence officer for almost two decades. He had questioned high-level prisoners of war during the 1989 invasion of Panama and Iraqi generals during Operation Desert Storm, and he'd run the Air Force Combat Interrogation Course. At the Baghdad airport, however, he witnessed techniques he hadn't seen in the field. In one of the plywood-walled interrogation rooms he saw a detainee slapped in the face each time he answered a question. Outside another room was a taped-up sheet of paper with the words "1 hour sleep, 3 hrs. awake, ½ hr. on knees, ½ sitting down, 1 hr. standing, ½ hr. knees" written on it. At the bottom it read, "Repeat."

"This was a year before Abu Ghraib. It was going on in Iraq

were stored," Kleinman says. He told them about his neighbor, a chauffeur for two former Ba'ath party leaders, a fact Kleinman hadn't even known to ask for.

In intelligence, as in the most mundane office setting, some of the most valuable information still comes from face-to-face conversations across a table. In police work, a successful interrogation can be the difference between a closed case and a cold one. Yet officers today are taught techniques that have never been tested in a scientific setting. For the most part, interrogators rely on nothing more than intuition, experience, and a grab bag of passed-down methods.

"Most police officers can tell you how many feet per second a bullet travels. They know about ballistics and cavity expansion with a hollow-point round," says Mark Fallon, a former Naval Criminal Investigative Service special agent who led the investigation into the *USS Cole* attack and was assistant director of the federal government's main law enforcement training facility. "What as a community we have not yet embraced as effectively is the behavioral sciences."

Failures of interrogation can have tragic results. Of the 325 people exonerated in the U.S. by DNA evidence, more than a quarter had confessed under interrogation, falsely admitting to violent, often unspeakable acts. As for the war on terror, the Senate Select Committee on Intelligence report released in December on the CIA's "enhanced interrogation" program is a long and detailed argument that waterboarding, extreme sleep deprivation, rectal feeding,

# ... ABOUT QUESTIONS

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and Afghanistan, and of course at Guantanamo," Kleinman says. "Sometimes I got to the point where I had to literally order them to stop. Even then there was surprising blowback. People thought I was coddling terrorists." Kleinman didn't think of himself as soft, though, just empirical. In his free time he was an avid consumer of behavioral science research papers, and over the years he'd experimented, in an ad hoc way, with the ideas he found there.

One afternoon a team of Army Rangers brought in a man in his late 30s suspected of selling weapons to the insurgents. By the time Kleinman heard about it, the man had been in custody for three days, enduring hooded stress positions and harsh interrogations, but maintaining a defiant equanimity. "He had these really dark, penetrating eyes. I remember it was almost disconcerting," Kleinman says. He decided to take over the interrogation himself, and the two men, seated on folding chairs, spoke for three hours. The arms dealer had two young daughters, and he worried for their safety growing up in a violent city. Kleinman pretended that he, too, had two girls, and talked about his worries for them.

After the man grew comfortable, Kleinman tried a thought experiment with him. What if insurgents shot at American soldiers with some of the Kalashnikovs he had sold them and accidentally killed an Iraqi child? Did the arms dealer deserve any blame for the bloodshed that so concerned him as a father?

For a long moment the man just stared at Kleinman. "I thought, OK, this hasn't worked at all," he remembers. Then, to his surprise, the man dropped his head into his hands. He'd never thought about it like that, he said. "He told us where his guns were stored. He told us where the guns of his competitors

"wall-slammings," and other techniques were not just harmful, but also counterproductive. Part of the problem, as a 2006 report by the Office of the Director of National Intelligence put it, was a "shortfall in advanced, research-based interrogation methods."

A small community of interrogators and behavioral researchers in the U.S. and abroad has set out to change that, developing an alternative set of practical, science-based techniques, many of which run counter to what's been taught in police academies and outlined in the U.S. Army Field Manual. Five years ago, President Obama created a new intelligence body, the High-Value Detainee Interrogation Group, to handle suspected terrorists; one of its teams questioned Boston Marathon bomber Dzhokhar Tsarnaev after his arrest. The HIG, as it's called, has funded scores of studies.

Christian Meissner, a psychologist at Iowa State University, coordinates much of HIG's research. "The goal," he says, "is to go from theory and science, what we know about human communication and memory, what we know about social influence and developing cooperation and rapport, and to translate that into methods that can be scientifically validated." Then it's up to Kleinman, Fallon, and other interested investigators to test the findings in the real world and see what works, what doesn't, and what might actually backfire.

Not too long ago, as part of a test designed by psychologist Melissa Russano, a young woman in a tank top sat at a table with a look of growing apprehension, hunched protectively over her handbag. A student, she had just taken an exam, and a test administrator was accusing her of cheating: Her answers, he said, matched up with those of another student. The administrator said he had just called the professor running the study and reported that he



# COMMON ERRORS MADE DETECTING LIES

## ❶ EXAMINING THE WRONG CUES

CUES SUCH AS GAZE AVERSION AND GROOMING GESTURES AREN'T RELIABLE

## ❷ OVEREMPHASIS ON NONVERBAL CUES

STEREOTYPICAL BELIEFS ABOUT BEHAVIOR CAN LEAD TO FALSE SUSPICION

## ❸ THE OTHELLO ERROR

HONEST PEOPLE CAN BE AS NERVOUS AS LIARS

## ❹ POOR RESULTS

PROFESSIONALS CORRECTLY CLASSIFIED LIARS 56% OF THE TIME WITH A 50% MARGIN OF ERROR

## ❺ NEGLECT OF PERSONAL VARIATIONS

PEOPLE RESPOND DIFFERENTLY IN DIFFERENT CONTEXTS

## ❻ NEGLECT OF PERSONAL DIFFERENCES

INTROVERTS CAN BE MORE AT RISK FOR FALSE DETECTION

was not at all happy. "He may consider this cheating, I don't know," the man said, with sympathy. "I'm sure you didn't know it would be such a big problem to be sharing. I probably would have done the same thing if I were in your shoes.... It would ease my professor up if you were seen to be cooperating." He slid a piece of paper toward her with a confession written on it.

"I don't think I should sign it. I didn't do anything," said the student. Shaking her head, her face pursed in disgust, she signed. As it turned out, she was innocent.

A decade ago, Russano, a professor at Roger Williams University in Rhode Island, set out to design a study that would replicate the social and emotional dynamics of a real interrogation in the lab, where conditions could be controlled. And where, unlike in the messy world of actual cases, the truthfulness of confessions could be easily evaluated. Her study had subjects take a cognitive ability test in a room with another student. Half the time the second student, who was actually working for Russano, would ask for help. The test subjects knew it was against the rules, but most would willingly share their answers. Later, after the test administrator had ostensibly looked over some of the results, he would come back, say there was a potential issue, and leave the subject to stew alone in a room for five minutes. Then some version of the interaction above, taken from a video of one subject, would unfold.

Russano was interested in testing what have long been the twin poles of interrogation styles: "minimization" and "maximization." They're forms of coercion that correspond, roughly, to "good cop, bad cop." Minimization plays down the significance of the crime and offers potential excuses for it—"you just meant to scare her" or "anyone in your situation would have done the same thing." Maximization plays it up, confrontationally presenting incriminating evidence and refusing to allow any response except a confession. The two are the most widely used tools in the American police interrogator toolkit. The Army Field Manual, which governs all military interrogations, lists approved maximization methods such as "Emotional Fear-Up" and "Emotional-Pride and Ego-Down."

Chicago-based John E. Reid & Associates is the biggest interrogation trainer in the world, teaching thousands of police officers, intelligence operatives, and private investigators every year. Its techniques are based on the experience of the company's founders, interviews with suspects after interrogations, and what would appear to be common sense. "In sex crimes, it is also helpful for the investigator to state that he has heard many persons tell about sexual activities far worse than any the suspect himself may relate," the Reid manual Criminal Interrogation and Confessions advises. "This will serve to encourage

the suspect to admit a particularly 'shameful' kind of sexual act."

These techniques do indeed produce confessions. What Russano found, though, was that those confessions are often unreliable. "Guilty people are more likely to confess" when minimization and maximization are used, she says. "The problem is, so are innocent people." Minimization alone nearly doubled the number of cheaters who confessed in her studies. But it tripled the number of noncheaters who falsely confessed. The videos of those false confessions make for fascinating viewing. Some are angry, some resigned. One young woman keeps her composure until the test administrator leaves the room with her signed confession, then dissolves into tears.

These techniques are a long way from torture—university researchers aren't likely to run a waterboarding study. They're also a long way from the sorts of interrogations that have unfolded in precinct houses and desert prisons; after all, as Joseph Buckley, president of John E. Reid & Associates, points out, compared with actual criminals, college students are easy marks. What Russano's work shows, however, is that even gentler forms of coercion can implicate the innocent and produce misinformation.

Russano is still running versions of that first interrogation study, changing the script to see how it affects the outcome. In one iteration, she explored whether minimization could be purged of the implicit offer of leniency. She had her interrogators be sympathetic, even flattering—saying things such as, "I am sure you are a good person, and no one wants to be accused of cheating or breaking the rules"—but without playing down the seriousness of the offense or its potential punishment. They got just as many true confessions that way, but far fewer false ones.

Coercive methods are also hobbled by investigators who, far from having some kind of hard-boiled street sense about guilt and innocence, are not necessarily good at knowing whether they're interrogating a criminal or a valuable witness. The typical interaction between an interrogator and a suspect begins with a determination of guilt or innocence, what Reid calls the Behavior Analysis Interview. But hundreds of studies have shown that interrogators would be just as well off flipping a coin. It doesn't matter whether they're simply observing someone speak or asking them questions—the biggest difference between professional and amateur lie detectors is that professionals are much more confident in their abilities.

For one thing, liars often don't act the way they do on television and in interrogation training manuals. Reid's Criminal Interrogation and Confessions lists "scratching any part of the body," "closed, retreated posture," and lack of eye contact as possible signs of deception. In 2003 a team led by the psychologist Bella DePaulo, then at the University of Virginia, studied those and other cues, synthesizing all the research studies that had been done to that point. Breaking eye contact and fidgeting didn't actually correlate with lying, they found, nor for that matter did any of the physical tells they looked at. A lot of the behaviors can be symptoms of nervousness, of course, but even an innocent person under interrogation is likely to be nervous. "The basic assumption that liars will be more affected emotionally, it's very intuitive, but it's never been supported empirically," says Par-Anders Granhag, a psychologist at the University of Gothenburg who has trained the instructors at the Norwegian Police University College.

Granhag is a leading proponent of an alternate approach to lie detection that relies on deception's mental cost rather than its emotional one. Lying is hard: Functional magnetic resonance imaging scans show heightened activity in the brain regions associated with self-control during lying. A liar has to keep his story straight, he has to monitor the listener's reaction, and he has to monitor himself to make sure he doesn't look shifty. As a result, lies tend to be told more carefully than true stories—liars speak more slowly, and they include fewer details.

When the psychologist Aldert Vrij, of the University of Portsmouth, asked English police officers to watch videos of people telling stories and pick which ones seemed to be thinking harder rather than which were lying, the officers got better at spotting deception. An interviewer can also add to the cognitive load of the interviewee. A 2008 study led by Vrij, for example, found that when liars were asked to tell their stories in reverse rather than chronologically, they were significantly more likely to be spotted. Other work has suggested that introducing incriminating evidence incrementally, rather than all at once, also makes a liar more likely to slip up.

Buckley refutes work such as Vrij's. The compromises required to simulate in a lab study what happens in the real world, he argues, render the findings useless. "When you deal with people who are committing mock crimes, there's no parallel, because they have nothing at stake," he says. The Reid method is, he freely admits, built on anecdotal evidence, but in an interaction as complex as an interrogation, that's all there really is. "There's no scientific research on it. I mean, it's impossible to do that," he says. "Human nature is pretty much human nature."

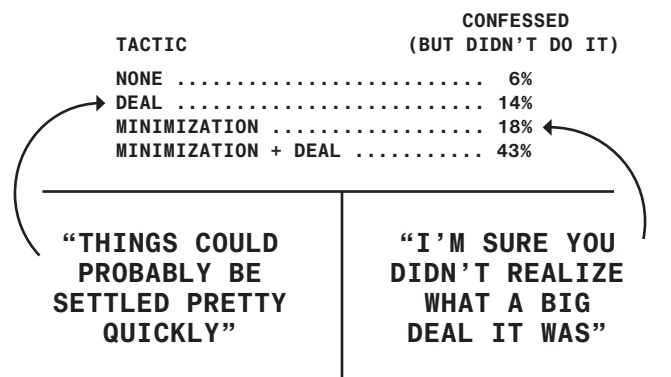
But what if interrogators avoided coercion altogether? Laurence Alison, a psychologist at the University of Liverpool, has found evidence for the power of rapport-building in real-world interrogations. Alison got access to 181 interrogations of Islamic and right-wing terrorists by British police and coded them for different approaches. He found that the most productive interrogations in terms of information were those in which interrogators essentially acted like therapists. Investigators in Australia, the Netherlands, New Zealand, Norway, and the United Kingdom are now trained to focus not on extracting admissions of guilt but on gathering evidence. That information can back up an innocent suspect's story, or it can be used to nail a guilty one. Confessions are not discouraged, but British conviction rates suggest that, to juries, the contortions of suspects facing inconvenient facts can be just as damning.

Much of the HIG-funded research and training has focused on getting better information, even out of people who are perfectly willing to talk. Memories can be as tricky to access for the subject as for the interrogator. One of the limiting factors, it turns out, is the simple act of asking questions. In the early 1980s a young cognitive psychologist named Ronald Fisher noticed he had a strange knack for helping people find misplaced possessions. A friend would call asking if he had left his wallet at Fisher's apartment, then while talking remember where he'd put it. Fisher realized that without thinking about it he was jogging their memories, subtly guiding the conversation based on theories of memory he was teaching his students at the University of California at Los Angeles. Along with his colleague Edward Geiselman, he started poring over the research literature and watching hundreds of hours of interviews. In a 1985 paper the two formalized the procedure into what they would call the Cognitive Interview.

One of Fisher and Geiselman's insights was that a typical question-and-answer format makes an interview less likely to yield new information. "Good interviewers ask very, very few questions," Fisher says. "If you stop and think about it, it makes sense. Why do you ask a question during an interview? Because the witness is not telling you what you want to know." The more questions asked, Fisher realized, the less likely a witness was to volunteer information, since he was just waiting for the next question.

To address this, the Cognitive Interview emphasizes open-ended questions: Witnesses are told to report everything they remember, whether or not it feels important. They are asked to close their eyes or draw a sketch of how a room was laid out. Interviewers prompt them by asking that they describe the scene from other vantage points—across the street from where they stood or from the car in front of theirs—and to retell a sequence of events starting at different

## RATES OF FALSE CONFESSIONS



INVESTIGATING TRUE AND FALSE CONFESSIONS WITHIN A NOVEL EXPERIMENTAL PARADIGM BY RUSSANO, MEISSNER, NARCHET, AND KASSIN, AMERICAN PSYCHOLOGICAL SOCIETY

points or in reverse order. Memory is highly associative, and what for a liar is a cognitive challenge can sharpen recall for someone recounting actual experiences, shifting the context in a way that throws previously unnoticed details into relief. In 2013, Fisher ran a study at the Federal Law Enforcement Training Centers in Glynco, Ga. Instructors there were able to get 80 percent more relevant, accurate information using the Cognitive Interview than using the traditional method they taught their students. Police departments and intelligence agencies have begun to adopt it. HIG is teaching federal investigators the method, and the Air Force Office of Special Investigations, the branch's law enforcement and intelligence arm, is training all of its investigators in it.

Researchers are even moving beyond conversation entirely. In 2012, Maria Hartwig started looking at the role that environment played in investigative interviewing. Hartwig, 34, is a former student of the University of Gothenburg's Granhag and a professor at the John Jay College of Criminal Justice in New York, where she keeps a small Pinocchio figurine in her office. The basis for her work is a theory called "embodied cognition," which holds that because our brains first evolved to move our bodies through the world—and only later became capable of higher-level thinking—body and brain still influence each other in elemental, unconscious ways. Some of the best-known work has found that being physically warm makes people more generous toward others and that being excluded socially can lower someone's estimate of the room temperature.

If the embodied cognition literature was correct, Hartwig reasoned, the typical interrogation room—claustrophobic, locked, austere—was exactly the wrong sort of space to get someone to divulge information. In a yet unpublished study, she redesigned the space around the theme of openness: open windows, an open book on the table, open desk drawers, "a picture of open water under an open sky," as the paper describes it. She found that subjects provided more detail when questioned in the redesigned interrogation room. The Philadelphia Police Department has expressed interest in the idea, and Hartwig and her collaborators are trying to figure out how exactly they will redecorate interrogation rooms.

Hartwig admits that the work is preliminary. Even if the results hold up, she's not claiming that the right décor will get terrorists to reveal bomb plots right away, but most interrogators agree that nothing will. "Interrogation doesn't have a magic switch," says Colonel Kleinman. "There's not some 'break in case of fire' type of option." Believing there is, he argues, is part of how you end up with a torture program. In a way, the new tactics are more about doubt than certainty. As deception researchers like to put it, there is no Pinocchio's nose. **B**

# TRADING ROCKS IN THE HOT SUN

Photographs  
by Angie Smith

Early each year, Tucson becomes a mecca for many of the world's leading collectors and dealers of minerals and gems. For several weeks leading up to the Tucson Gem & Mineral Show at the convention center, dealers set up shop in tented parking lots, motels, and hotels, pushing beds aside to make room for their wares. The Tucson show started more than 60 years ago, and now almost 55,000 people visit annually, according to the local tourism board. Over the years, it's expanded from hobbyists to include curators, collectors, and investors. "This has changed from a hobby to an asset class," says Rob Lavinsky, owner of iRocks.com, which also has galleries in Dallas and Shanghai. "There was not a huge resale market, but now it's huge." Lavinsky spends his time at the show educating new buyers and setting up private viewings, even if they are in a hotel bathroom.

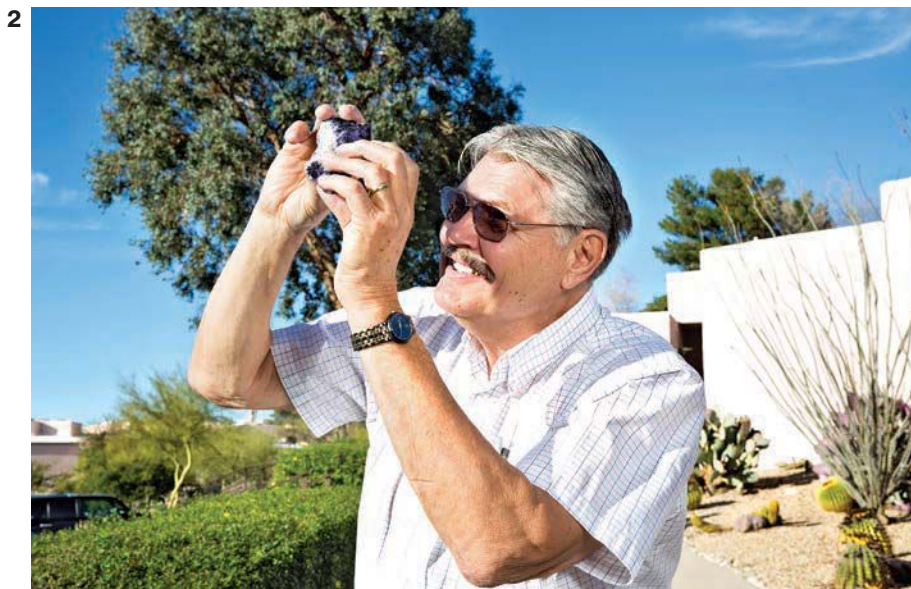
—Karen Weise

Vendors sell lower-end crystals on tables in the parking lot outside the Kino Sports Complex





Name: coral  
名称: 珊瑚  
locality: 广西/ea



1. Lavinsky calls this piece of gold from Western Australia the Thunderbolt. It weighs 3,600 grams and is valued in the seven figures.

2. Albert Liebetrau, a retired statistician from Powell Butte, Ore., looks at a piece of purple fluorite in natural light.

3. Patrick McCarthy of Mt. Pleasant, S.C., sold out of the fossilized teeth from

a prehistoric shark called a megalodon.

4. Dealers often keep valuable pieces in the bathroom for more privacy and controlled access. Bill Larson asks \$65,000 for this shattuckite and malachite specimen from the Democratic Republic of the Congo.

5. Dealer Michael Base unpacks a piece of pegmatite weighing 590 kilograms.





7



8



6. A tray of about two dozen pieces of pyrite, also called fool's gold, sells for roughly \$250.

7. Wang Ya Dong and Zhang Jun, collectors from China, examine an aquamarine from Pakistan that

Lavinsky values at \$250,000.

8. This Swiss smoky quartz, owned by a gas industry executive, is valued in the six figures.

9. Rasamayi Turturici demonstrates how

bowls made from melted quartz and other minerals create a singing resonance when they are played. The bowls from Crystal Tones sell from about \$150 to several thousand dollars.

9



# Bloomberg Businessweek Design 2015

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littleBits

**Michael Bierut**  
Pentagram

**Tim Brown**  
IDEO

**Robert Brunner**  
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**Steve Cousins**  
Savioke

**Nicole Dosso**  
Skidmore Owings & Merrill

**Matias Duarte**  
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BIG

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Susan Kare Design

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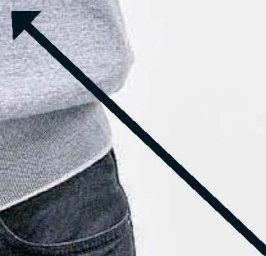
**April 28**  
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A REALLY COOL... **HEADSET** / **CHIC WOMEN'S WATCHES** / **TAKE A BREAK** / **THE NEW JAMES BOND?**

# ETC

## The Food Futurist

A carafe that turns liquor and other beverages into inhalable vapor



At Boston's  
Café ArtScience,  
diners become  
lab rats for  
David Edwards's  
experiments  
By Belinda Lanks

Photographs by  
Harry Gould Harvey IV

**T**he best drink to order at Café ArtScience isn't listed on the menu. That doesn't stop regulars from sidling up to the bar at the Cambridge (Mass.) restaurant and ordering the Scotch tasting flight. To make it, bartender Todd Maul produces a special carafe, into which he pours a few peaty whiskies. The device then transforms the liquor into diaphanous fog. When you sip the vapor through the vessel's glass straw, it has the same taste and smell as regular Scotch but none of the calories, intoxication effects, or subsequent hangover. The wafting cloud—Scotch as it may be—has been denatured of its alcohol.

The carafe, dubbed Le Whaf, is one of the latest creations from David Edwards, a Harvard engineering professor whose work focuses on using air to improve health. In recent years he's become obsessed with nutrition, creating things like inhalable chocolate and edible water bottles. He teaches only one semester-long class each year: How to Create Things and Have Them Matter, in which 20 students focus on producing "an innovation that in some clear way benefits the world." With his Moses hair style and collection of floral-printed shirts, he rarely passes as an academic.

Café ArtScience is his first restaurant. It's also a showroom for his inventions. As you enter the modernist space, which opened in October, fluorescent-lit shelves show off Les Whafs, on sale for \$225. Next to them are pods of \$7.99 dietary supplements that, when placed in aerosol canisters, administer puffs of melatonin or caffeine to the lungs. "I'm able to deliver nutrition without any of the side effects that are sometimes associated with drinking a Red Bull," Edwards brags.

At the freezers near the bar, customers use tongs to pluck out \$1.99 spheres of ice cream. The size of golf balls, these WikiPearls,

as they're called, are wrapped like grapes in a flavored skin that helps frozen liquids keep their shape as they melt. "Edwards comes to a problem and really wants to get to the truth," says Terry McGuire of Polaris Partners, who invested in the pearls. "From a collaborative perspective, that's empowering." In 2014, Edwards and his investors—including other venture capital firms such as Flagship Ventures and Unigestion—licensed the technology to organic yogurt maker Stonyfield Farm. In October the company started distributing WikiPearl frozen yogurt to 38 Whole Foods stores.

Despite its retail element, Café ArtScience also functions as a proper restaurant. Sharing its Kendall Square neighborhood with satellite offices for Google, Microsoft, and Akamai Technologies, it draws in Boston's technology Brahmin, as well as professors from MIT and Harvard, which are a few miles away. The chef, Patrick Campbell, who came on board from Boston's Eastern Standard, makes contemporary French fare such as Nantucket Bay scallops in a salt cod velouté. Only rarely does he use Edwards's inventions in his kitchen, but he's begun playing around; eventually, he says, he wants Le Whaf to lend complementary tastes to certain dishes. Maul, the cocktail maestro, has experimented a bit more. When Edwards hired him in November, he was already well known for using centrifuges, vaporizers, and other lab equipment at Boston's Clio restaurant.

Molecular gastronomy has been a culinary gimmick since at least the mid-1990s, as chefs including Ferran Adrià (Madrid), José Andrés (Washington), Grant Achatz (Chicago), and Wylie Dufresne (New York) began cooking with butane burners, dehydrators, hot-infusion siphons, and other tools that were once meant for chemistry labs. As the cuisine has gone in and out of style in the past two decades, scientists themselves have started trying to revolutionize the way we consume food. Soylent, for instance, reduces meals to a \$4 nutritional shake to save time and money. Beyond Meat, an upstart making fake chicken strips from plant protein, has recently received an investment from Bill Gates. This year about a half-dozen other companies have tried to fine-tune new forms of ingesting melatonin and insulin.

Few have aimed to capture the sensorial experience of food—what Edwards calls the "head experience"—while cutting out the actual eating and drinking. "Your first adopters are going to be a certain kind of people," he says from a dining room that's stark white, with exposed ceiling pipes, marble table tops, moss-green velvet banquettes, and honeycomb-shaped light fixtures. "This aesthetic is designed to make them feel welcome." One frequent customer is Tim Rowe, founder of the Cambridge Innovation Center, who says the restaurant works because the science part is approachable. "It's not this highbrow food as chemistry," he adds. Edwards says Café ArtScience brings in \$10,000 to \$15,000 a day—the average entrée is \$22—and he's on track to pay back its five outside investors in two years. Prime dinner reservations have been tough to get since it opened.

People haven't always responded so warmly to Edwards's work. In 2010 he was interviewed on a French TV show about his edible bottles, made from a natural membrane held together by electrostatic forces. The pear-shaped product was still in its nascent



From top: The dining room; inhalable chocolate spray; foie gras "ice cream"; a "Todd Collins" with flavored ice cubes



**"I'm able to deliver nutrition without any of the side effects that are sometimes associated with drinking a Red Bull"**



phase; you bit the top off to drink from it. When he arrived on the set, Edwards was groggy with jet lag, having just flown into Paris, his second home, from Cambridge. A curtain pulled open to reveal 10 volunteers, who burst into uncomfortable laughter while handling the jiggling bottle. "Doing something in the lab is one thing," he says. "But it's very hard to bring those innovations immediately into a mass-market setting."

After that, he realized the need to test his products on potential customers. So in 2007 he opened Le Laboratoire in Paris, which functions as a gallery and retail space. Café ArtScience is an extension of that—Edwards was originally courted to set up shop in Cambridge by BioMed Realty, a life-science real estate company that was looking to keep its building buzzing at night. Next door to the restaurant, Edwards brokered a lease for a gallery, which has become a U.S. version of Le Labo. He rents it out occasionally for events but mostly uses it to stage free scientific exhibitions. The inaugural show, open through March, features works by MIT Media Lab's Neri Oxman and Tod

Machover, who explore how hearing familiar voices influences mental and physical health.

Edwards, 53, doesn't need these businesses to make much money. One of his projects already made him rich. In 1997, working with MIT professor Robert Langer, he developed a whiffle-ball-like particle that could carry insulin to the lungs, potentially allowing diabetics to avoid annoying injections. In 1999 their startup, Advanced Inhalation Research, was bought by the biopharmaceutical company Alkermes for \$114 million in stock. After that, "investors and bankers cared a lot more about what I was saying than any audience that had ever listened to me in my academic days," Edwards says. "People were truly betting on [my] ideas."

Ultimately, the inhalable insulin concept didn't pan out. By the time it passed pharmaceutical trials, it was so costly to administer that health insurers wouldn't cover it. This soured Edwards's interest in medicine. "Having to go through regulatory bodies and major corporations before people can actually use this stuff is a big liability," he says.

He began focusing instead on less-regulated substances, such as vitamins and food.

Even so, his inventions haven't always passed muster with the U.S. Food and Drug Administration. In 2012 the agency claimed that his Aeroshot caffeine inhaler was misbranded as a dietary supplement. By definition, the FDA charged, a dietary supplement had to be ingested, not inhaled. The product is still sold, though it's now described as an "air-based nutritional supplement."

Eventually, after items like the Aeroshot are critiqued by diners at Café ArtScience, Edwards hopes more supermarkets and food emporiums will start stocking them. This summer a line of coconut milk WikiPearls (free of dairy and other potential allergens) will hit shelves at Dave's Fresh Marketplace, an independent chain of New England grocery stores.

Edwards is also tinkering with noningestible toys. The latest, called the oPhone, is a joint creation with a former student, 24-year-old Rachel Field, that lets users tag messages with scents and send them around the Web. Like Proust with his famous madeleine, Edwards wants to explore the link between aroma and memory—he thinks it could have value in the field of virtual reality. The \$149 device, which will start shipping in April, includes various scented chips that when heated send brief whiffs of roses or brown sugar through a handset. The team is also developing an oBook, a children's storybook app connected to an odor-emitting oPhone, to update '80s scratch-and-sniff technology.

Of course, there's an oPhone to test out at Café ArtScience. There, you use it to smell coffee beans from the premium French roaster Coutume before ordering an espresso drink. It's not perfect yet. The first "aroma tweet," sent last June, was supposed to call to mind Champagne and macarons, but it smelled more like a Hershey's bar. Edwards still has hope, he says. "Any innovation is going to get it wrong before getting it right." **B**

# Right on Time

*Why are so many women's watches sparkly, delicate, and fashiony? Invest in one of these classics, and you'll retire before it does. By Stephen Pulvirent*

## WHAT SIZE SHOULD I BUY?

Any face smaller than 33mm veers into dainty territory, and if you go over 40mm, it'll look like you borrowed it from your husband. Women—and men, too—can't go wrong with something in the 36mm to 38mm range.

### Uniform Wares C35

The rose-gold coating has a softer color than polished 18-karat gold, and it pairs nicely with the matte gray dial. Uniform Wares also makes dozens of other straps—in cordovan, rubber, or even stingray—to personalize the watch. \$610

### Tudor Glamour

With a sporty black dial balanced out by lightweight hands, it doesn't look like anything offered by Rolex, Tudor's sister brand. The automatic movement inside is just as robust, though, making this a great choice for daily wear. \$2,250

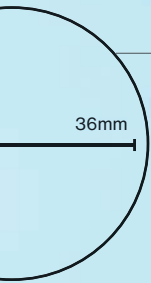
### IWC Portofino Midsize Automatic

A departure from the brand's usual "man's man" aesthetic—no carbon fiber or fighter jet references here—the Portofino Midsize is only 9mm thick. The red-gold case adds some heft, and the 12 tiny diamonds marking each hour lend a bit of sparkle without going overboard. \$14,800

### Montblanc Star Classique Automatic

Two-tone watches—mixing different metals in one piece—were last popular in the late 1980s, but the best new versions don't look like they belong in *Working Girl*. This steel-and-yellow-gold combination is nice for daytime, when the star on the face keeps it from being too stuffy. \$5,900





36mm

### Zenith Captain Ultra Thin Moonphase

The patterned dial, slim Roman numerals, and inky blue moon-phase indicator give it a romantic look, inspired by vintage dress watches. The case back is made from clear sapphire crystal, so you can admire the beveled edges and circular grain of the automatic movement inside as it runs. \$5,300

### Cartier Tank Américaine

There are dozens of variations on the rectangular Tank watch. The Américaine is longer and slimmer than most, with a slightly curved back. Introduced in 1989, it was named for the New England prep look—as imagined from Paris—and, in white gold, it still looks fresh. \$11,300



### Shinola Runwell

A 36mm version of a workman's style, it has basic numbers and luminous hands that make it easy to read at this smaller size. Like all Shinolas, it's assembled by hand in Detroit, where the triple-wrap leather strap is hand-cut from American leather. \$575

### Nomos Glashütte Tetra

The Tetra features the same clean lines, Bauhaus-inspired numerals, and simple layout found on other Nomos watches, but it comes in blue, rose, mint, and other playful colors. Nomos, founded in 1990 in Germany, is the rare small company that develops its technology in-house; it's serious watchmaking that doesn't take itself too seriously. \$2,320

## THE TRENDIEST DETAILS TO AVOID

#### Straps

Satin ones are beautiful until you wear them—it will take 10 minutes to gather dirt and coffee stains. Instead, go for a slim leather or metal bracelet. It'll get beat up nicely without getting gross.

#### Metals

Rose gold is hot right now, but the metallic hues can vary from almost red to an imperceptible blush. Choose something that's not too pink, otherwise it will look dated by the decade's end. White gold's also chic.

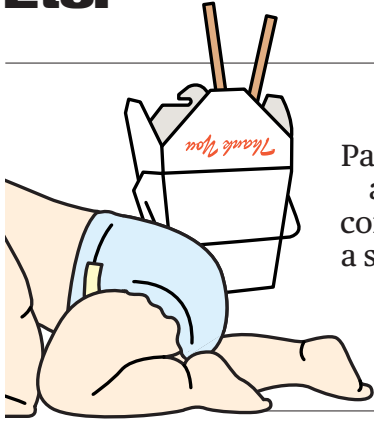
#### Dials

It's tempting to go for fancy engraving, a mother-of-pearl background, and scrolling numerals, but remember: You actually have to read the time. Simple always wins.

#### Jewels

There's nothing wrong with a little diamond adornment (like the IWC shown here). But unless you want your watch to shout "you're paying me too much," save the real bling for other jewelry.





"I grab takeout in downtown Palo Alto with my co-founder, Alon, who also happens to be my husband. The conversations are funny—we'll talk about a serious deal and then argue over who's going to buy diapers after work."

**Adi Tatarko**

*Co-founder and chief executive officer, Houzz*

"I nap. I set my alarm for 10 minutes, put in ear plugs, rest my head on the back of my chair, and doze away. For years, I tried to fight afternoon exhaustion to no avail. Now I feel refreshed, calm, focused, and in control of my day."

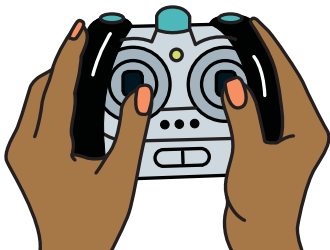
**Katherine Schafner**

*Psychotherapist*

"We fly remote-control mini-toy helicopters on our office squash court. There's something amazing about getting to know people over a shared hobby, so we're looking into racing remote-control toy cars next."

**Aaron Goldstein**

*Co-founder and chief operating officer, Klick Health*



"I read. I recently downloaded *The Lean Startup* by Eric Ries and enjoy books related to technology and business."

**Martha Poulter**

*Chief information officer, Starwood Hotels & Resorts Worldwide*



# GIVE ME A BREAK

*How nine professionals quickly unwind in the middle of the workday. By Arianne Cohen*

"I study French. We're expanding our business to Africa, and I'm keen to connect with clients in their native language. I use an app called Duolingo, and the exercises take about 30 minutes. I'm getting better."

**Ashley Hunter**

*President, HM Risk Group*

"I work for an early-stage startup, and lunch is basically a land grab for catering. While I'm digesting, I quickly read Hacker News, Redeye VC, and Techmeme and catch up on non e-mail communication like texts and tweets."

**John Milinovich**

*Co-founder and CEO, URX*

"I roam around the Art Institute in Chicago. In minutes, I can be surrounded by lifelike Greek statues or in an ancient Mesopotamian room. It's a way for me to stretch my legs and inspire new work."

**Ximena Beltran Quan Kiu**

*Founder, CI Revolution*

"I'm from Alaska, so I crave the outdoors. I take a mile walk to the post office, even though nobody walks in L.A."

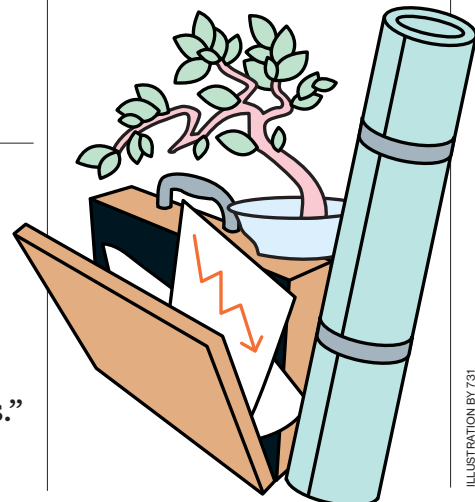
**Gabie Boko**

*Chief marketing officer, Sage*

"I take a daily Vinyasa yoga class. The communications firm I run is ridiculously hectic, with deliverables flying left and right. Yoga allows me 100 percent mindless time right in the middle of the day, as well as feel-good endorphins."

**Zachary Weiner**

*CEO, Emerging Insider Communications*



# THE HEADSET REDEEMED

*A less ugly, more ergonomic phone-call helper*

Send all your calls to voice mail? M&D's headphones, in steel and leather, make music sound fantastic, too.

**H**eadsets were once made only for telemarketers. Other people would just crunch the telephone handset into their neck—creating “awkward posture,” as the Occupational Safety and Health Administration puts it—or blabber away on speakerphone.

But now that 70 percent of U.S. offices are open-plan, according to the International Facility Management Association, a headset is a basic requirement if you want to type and talk with any sense of privacy. Too bad most of them look so dorky.

New York headphone maker Master & Dynamic has solved that issue. Its Boom Mic (\$199; [masterdynamic.com](http://masterdynamic.com)) is little more than a sleek rod of black or silver aluminum that links to a phone or tablet. Instead of connecting to your ears with a flimsy plastic band, the device plugs into M&D's existing range of headphones (\$349-\$399; sold separately) to borrow their acoustic power. The tiny unidirectional mic filters out the clamor of colleagues and creates what sounds like a face-to-face conversation.

The idea was born at Manhattan's NeueHouse, one of those co-working spaces that have proliferated as U.S. workers become more transient. After M&D started in May, it began working with NeueHouse's members—mostly creative types and freelancers—to crowd-source efficiency tools. These folks often sit shoulder-to-shoulder at a long table, and the Booms help them achieve a comforting sense of isolation. M&D's onto something: After I tested the headset for a week, my 3 feet of desk space felt at least as spacious as a cubicle. **B** —Kurt Soller

The Boom Mic's hinge rotates 240 degrees to fit all face shapes.

The MH40 over-ear model has a mute button for tuning out conference calls or momentarily silencing a song.

# DAPPER DISGUISE

With *Kingsman*, a Hollywood director puts his costumes on sale. By Chris Rovzar

A suit is a modern gentleman's armor," intones Colin Firth in the comedic espionage caper *Kingsman: The Secret Service*. "The Kingsman agents are the new knights." Firth, playing the international superspy Harry Hart, is standing in a clubby Savile Row dressing room teaching a lesson in sartorial wisdom to his latest recruit, Eggsy Unwin (Taron Egerton). Soon, Eggsy will have his own bespoke outfit, including a George Cleverley shoe that hides a poison-tipped knife and a gold lighter that doubles as a hand grenade. With these, he will save the world. (Oops, sorry. Spoiler alert.)

Throughout *Kingsman*, you may be distracted by the brogues, or the double-breasted suits, or even the eyeglasses and woven ties. You may also want to purchase them, which you can: Thanks to a partnership between the film's director, Matthew Vaughn, and the e-commerce emporium Mr Porter, almost all the apparel and accessories you see on screen were made available online when the movie opened in the U.K. in January. If you love British tailoring—and you have \$1,995 to spare—try Firth's blue velvet dinner jacket. The knife shoes go for \$950, blade not included. The Kingsman store from the film even briefly existed as a four-day pop-up at Huntsman, the Savile Row shop, where some scenes were shot.

It was Vaughn's idea to turn the costumes into fashion. After making action flicks such as *X-Men: First Class* and the

*Kick-Ass* series, he started thinking about how a movie's merchandising could be improved. It would be more fun, he thought, to own a cinematic spy's actual wardrobe than some action-figure facsimile. So he approached Natalie Massenet, founder of Mr Porter's parent brand, Net-a-Porter. Then he and costume designer Arianne Phillips worked with Mr Porter's buyers to create a real version of the film's fictional haberdashery.

"If [the fashion] hadn't

Brigg briefcases. It all looks masculine and enviable on Firth, Egerton, and the rest—and it holds up in a fight.

As a costume designer, Phillips is best known for her work on *A Single Man*, which, although it was directed by fashion designer Tom Ford, had no retail tie-in. "Being included into any kind of merchandising has never really been part of a conversation that costume designers have been invited into," she says. On-set artisans usually don't have rights to their creations after a movie is made. The *Kingsman* opportunity was a way for Phillips to retain control of her creative work—and to see how regular men might wear her looks. While Vaughn and Mr Porter share in the profit from the clothing line, Phillips is getting paid to design the collection for this season and next. Sales have been strong so far, Bateman says, and the line will continue whether or not the movie has a sequel.

The film itself is less well-thought-

out. Eggsy is a plucky ne'er-do-well whose father, a Kingsman, was killed in one of his first missions.

Years later, Harry nominates Eggsy when there's an opening for the spy gang. There are fun training sequences and plenty of those amusing Bondian innovations (the umbrella also doubles as a gun).

Then the movie devolves into an extended confrontation with a tech magnate—played by a mincing Samuel

L. Jackson—who's bent on destroying humanity to save the planet. At times the film functions as a class parable, with debts to *Pygmalion*. At other moments, it's a weak political satire.

Most of *Kingsman* plays out as a standard suits-and-spies flick. But as a director, Vaughn's best known for his violent fight sequences. So when those come—and they do, with guts and glee—they're startling and over-the-top. By the time the film is over, you'll wish you were back at the tailor shop of the earlier scenes, surrounded by all the beautiful expensive suits. **B**



been integral to the film, then I would have been suspicious," says Toby Bateman, fashion director for Mr Porter. But some of the partner labels, such as Turnbull & Asser, which sells \$350 oxford-cloth dress shirts, were in the original script. After brands like T&A made garments for the actors to wear on screen, it was easy to persuade them to sign on for the Kingsman line, Bateman says.

Every item comes from a heritage U.K. manufacturer. Vaughn himself wears lots of niche British brands, so he suggested including things such as \$150 driver's caps from Lock & Co. and \$2,995 Swaine Adeney

# MAUREEN LIPPE

Founder and chief executive officer,  
Lippe Taylor, New York

## What's Lippe Taylor?

An agency that includes marketing, branding, and advertising. We have about 30 clients, like Elizabeth Arden, George Foreman Grills, and Black & Decker. I help connect their brands to women.

## What's your fashion strategy for work?

I started my career at *Vogue*, for eight years, and all the senior editors wore black every day, and sometimes the same outfit two or three times a week. So I have the Maureen Lippe uniform—mostly black.

## Why?

It's so easy, and you can have so much fun with your accessories, which is what sparks it.

## Do you often wear patterns?

I've never met a stripe I didn't want to wear, particularly a black-and-white stripe. And animal patterns. I rarely wear any other patterns.

## What's your makeup strategy?

I wear pretty much the same makeup every day. I just have to simplify my life—I run a company. I play up my eyes and play down my mouth.

## Is it OK to mix brown and black?

Sure. This was always a discussion at *Vogue*, and the ruling was you can mix them. And there are no rules about white after Labor Day—all those rules have gone out the window.

## How many boots do you own?

I must have 100 pairs of boots, in black, brown, and gray, mostly ankle booties. I have a little biker chick in me, too.

ALEXANDER WANG

TOM FORD

FROM ITALY

FROM MYKONOS

HERMES

FROM MYKONOS

FRANK MULLER

BARNEYS

J BRAND

LOUIS VUITTON



# JIM McCANN

Chairman, founder, and chief executive officer, 1-800-Flowers.com

Fields of Europe Romance, a Valentine's Day bouquet



"Everyone thinks Valentine's Day is the biggest floral holiday. It's not—Mother's Day is."



McCann's shop in 1976

"One of my bar customers was selling a flower shop for \$10,000. I got this brilliant idea of 24-hour service. When I closed the shop, I'd forward calls home, and my wife—mother of three—fielded calls until I got there."

"We went from no competitors to 21 competitors financed by venture capital. We were advised to go public and raised the capital we needed to build a tech platform. Ninety percent of our business is now online."



With Whoopi Goldberg and McCann's sister (left) and wife (right) at a Broadway show

## EDUCATION

Bishop Loughlin Memorial High School, Brooklyn, N.Y., class of 1969

Monmouth College, West Long Branch, N.J., 1970-72

John Jay College of Criminal Justice, New York, class of 1975

## WORK EXPERIENCE

**1960-72**  
Assistant to his dad, Frank J. McCann Painting & Decorating

**1970-85**  
Bartender

**1976-85**  
Owner, Flora Plenty

**1985-99**  
Founder, 1-800-Flowers

**1999-PRESENT**  
Chairman and CEO, 1-800-Flowers.com

**2012-PRESENT**  
Minority owner, New York Mets

"At the end of the second year, they suggested that I go somewhere else."



McCann Sr.'s painting truck in the '60s

"He painted churches, funeral homes, and schools, and I did all the work the men found too disgusting."



"As an Irish Catholic kid from South Queens, I had a genetic requirement to be a Saturday night bartender."



In 1996

"I was there on Shea Stadium's opening day in 1964. The principal owner is a longtime friend."

## LIFE LESSONS

"The Persian Gulf War broke out, and all the CNN advertisers canceled, and they ran our ad extra. The war went well for the allies, and it was all brought to you by 1-800-Flowers. Suddenly we were a national brand."



**Stuck in traffic. *Ideas still moving forward.***



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